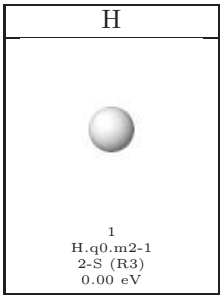
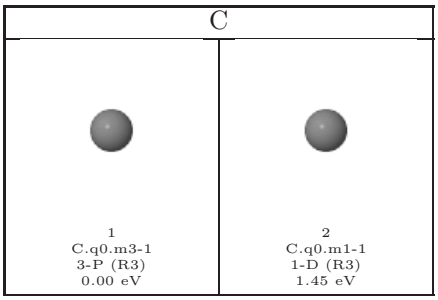
M3C-store

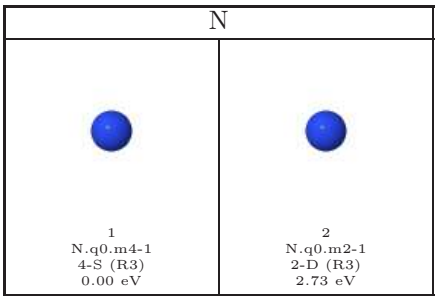
https://github.com/nfaguirrec/M3C-store

August 9, 2019

The latest release of M3C-store (version 1.2.0, released 2019-08-09) contains 1673 molecules including carbon clusters, hydrogenated and nitrogenated carbon clusters, and fragments from the furan molecule fragmentation. Its principal aim is to include the fragments necessary to describe the fragmentation of a given molecule. Each molecule is available at two levels of theory: B3LYP and CCSD(T), and two basis sets: 6-311++G(d,p) and 6-311++G(3df,2p). The files format is an extension of the popular .xyz format. Each molecule's file contains the energy, geometry, vibrational frequencies, symmetry and the symmetry of the electronic state. This database has been specially adapted as the starting point of an M3C calculation.







F	
	
1 F.q0.m2-1 2-P (R3) 0.00 eV	2 F.q0.m4-1 4-P (R3) 14.09 eV

H_2

1 H2.q0.m1-1 1-SGG (D*H) 0.00 eV

HC	
	
1 HC.q0.m2-1 2-PI (C*V) 0.00 eV	2 HC.q0.m4-1 4-SG (C*V) 0.67 eV

HF

1 HF.q0.m1-1 1-SG (C*V) 0.00 eV

C_2	
	
1 C2.q0.m1-1 1-SGG (D*H) 0.00 eV	2 C2.q0.m3-1 3-PIU (D*H) 0.09 eV

CN		
		
1 CN.q0.m2-1 2-SG (C*V) 0.00 eV	2 CN.q0.m4-1 4-PI (C*V) 5.71 eV	3 CN.q0.m4-2 4-SG (C*V) 6.11 eV

CF	
	
1 CF.q0.m2-1 2-PI (C*V) 0.00 eV	2 CF.q0.m4-1 4-SG (C*V) 3.49 eV

F_2	
	
1 F2.q0.m1-1 1-SGG (D*H) 0.00 eV	2 F2.q0.m3-1 3-PIU (D*H) 1.70 eV

H_2C		
		
1 H2C.q0.m3-2 3-B1 (C2V) 0.00 eV	2 H2C.q0.m1-2 1-A1 (C2V) 0.44 eV	3 H2C.q0.m3-3 3-A2 (C2V) 3.21 eV

HC_2		
		
1 HC2.q0.m2-1 2-SG (C*V) 0.00 eV	2 HC2.q0.m2-3 2-A1 (C2V) 0.95 eV	3 HC2.q0.m4-2 4-A" (CS) 3.78 eV

HCF

1
HCF.q0.m1-1
1-A' (CS)
0.00 eV

2
HCF.q0.m3-1
3-A" (CS)
0.61 eV

C_3

1
C3.q0.m1-1
1-SGG (D*H)
0.00 eV

2
C3.q0.m3-1
3-A1' (D3H)
0.84 eV

3
C3.q0.m3-2
3-A" (CS)
2.22 eV

C_2N

1
C2N.q0.m2-2
2-PIG (D*H)
0.00 eV

2
C2N.q0.m2-3
2-PI (C*V)
0.06 eV

3
C2N.q0.m2-1
2-A1 (C2V)
0.50 eV

4
C2N.q0.m4-2
4-SG (C*V)
1.05 eV

5
C2N.q0.m4-4
4-A" (CS)
1.11 eV

6
C2N.q0.m4-3
4-SGU (D*H)
2.26 eV

7
C2N.q0.m4-1
4-A" (CS)
3.14 eV

CF_2

1
CF2.q0.m1-1
1-A1 (C2V)
0.00 eV

2
CF2.q0.m3-1
3-B1 (C2V)
2.43 eV

F_3

1
F3.q0.m4-1
4-A1 (C2V)
0.00 eV

2
F3.q0.m2-1
2-A1 (C2V)
0.26 eV

H_3C

1
H3C.q0.m2-1
2-A2" (D3H)
0.00 eV

H_2C_2

1
H2C2.q0.m1-1
1-SGG (D*H)
0.00 eV

2
H2C2.q0.m1-3
1-A1 (C2V)
1.97 eV

3
H2C2.q0.m3-4
3-B2 (C2V)
3.88 eV

4
H2C2.q0.m3-3
3-B2 (C2V)
3.97 eV

5
H2C2.q0.m3-2
3-AU (C2H)
4.51 eV

H_2CF

1
H2CF.q0.m2-1
2-A' (CS)
0.00 eV

HC_3

1
HC3.q0.m2-3
2-B2 (C2V)
0.00 eV

2
HC3.q0.m2-1
2-A' (CS)
0.14 eV

3
HC3.q0.m4-1
4-SG (C*V)
1.42 eV

4
HC3.q0.m4-3
4-A" (CS)
2.68 eV

C_4

1
C4.q0.m1-2
1-AG (D2H)
0.00 eV

2
C4.q0.m3-1
3-SGG (D*H)
0.09 eV

3
C4.q0.m1-1
1-SGG (D*H)
0.48 eV

4
C4.q0.m1-3
1-A' (CS)
1.18 eV

5
C4.q0.m3-5
3-A1 (D2D)
1.26 eV

6
C4.q0.m3-2
3-B3U (D2H)
2.11 eV

C_3N

1
C3N.q0.m2-1
2-A' (CS)
0.00 eV

2
C3N.q0.m2-2
2-A' (CS)
1.17 eV

3
C3N.q0.m2-4
2-B1 (C2V)
2.08 eV

4
C3N.q0.m2-3
2-A" (CS)
2.16 eV

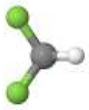
5
C3N.q0.m4-4
4-A" (CS)
3.90 eV

6
C3N.q0.m4-3
4-A" (CS)
3.99 eV

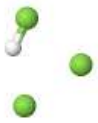
7
C3N.q0.m4-1
4-A" (CS)
4.03 eV

8
C3N.q0.m4-2
4-A' (CS)
4.74 eV

HCF_2



1
HCF2.q0.m2-1
2-A' (CS)
0.00 eV

HF_3

1 HF3.q0.m3-1 3-A (C1) 0.00 eV

CF_3

1 CF3.q0.m2-1 2-A1 (C3V) 0.00 eV

F_4

1 F4.q0.m1-1 1-A1' (D3H) 0.00 eV

H_4C

1 H4C.q0.m1-1 1-A1 (TD) 0.00 eV

H_3C_2	
	
1 H3C2.q0.m2-1 2-A' (CS) 0.00 eV	2 H3C2.q0.m4-2 4-A1 (C3V) 3.35 eV

H_2C_3

1
H2C3.q0.m1-5
1-A1 (C2V)
0.00 eV

2
H2C3.q0.m1-2
1-A1 (C2V)
0.62 eV

3
H2C3.q0.m3-1
3-SGG (D*H)
0.68 eV

4
H2C3.q0.m1-1
1-A1 (C2V)
1.18 eV

5
H2C3.q0.m1-3
1-AG (C2H)
1.19 eV

6
H2C3.q0.m3-2
3-A" (CS)
2.01 eV

7
H2C3.q0.m3-5
3-A (C1)
2.32 eV

8
H2C3.q0.m3-4
3-B2 (C2V)
3.01 eV

9
H2C3.q0.m3-3
3-A" (CS)
3.17 eV

HC_4

1
HC4.q0.m2-1
2-A' (CS)
0.00 eV

2
HC4.q0.m2-6
2-B1 (C2V)
0.94 eV

3
HC4.q0.m2-3
2-A" (CS)
1.34 eV

4
HC4.q0.m2-5
2-A' (CS)
1.88 eV

5
HC4.q0.m4-6
4-A (C1)
2.66 eV

6
HC4.q0.m4-1
4-A (C1)
2.72 eV

7
HC4.q0.m4-4
4-A" (CS)
2.95 eV

8
HC4.q0.m4-3
4-A (C1)
3.59 eV

9
HC4.q0.m4-2
4-A" (CS)
3.68 eV

C_5

1
C5.q0.m1-1
1-SGG (D*H)
0.00 eV

2
C5.q0.m1-2
1-A1 (C2V)
2.02 eV

3
C5.q0.m3-1
3-PIG (D*H)
2.28 eV

4
C5.q0.m1-5
1-A1 (C2V)
2.95 eV

5
C5.q0.m1-4
1-A1' (D3H)
3.09 eV

6
C5.q0.m3-2
3-A (C1)
3.10 eV

7
C5.q0.m3-6
3-A" (CS)
3.49 eV

8
C5.q0.m3-5
3-B2 (C2V)
4.22 eV

C_4N

1
C4N.q0.m2-11
2-PI (C*V)
0.00 eV

2
C4N.q0.m2-6
2-B2 (C2V)
0.03 eV

3
C4N.q0.m2-7
2-B2 (C2V)
0.83 eV

4
C4N.q0.m2-3
2-PI (C*V)
1.00 eV

5
C4N.q0.m4-2
4-SG (C*V)
1.07 eV

6
C4N.q0.m2-2
2-A' (CS)
1.57 eV

7
C4N.q0.m4-5
4-SG (C*V)
2.31 eV

8
C4N.q0.m2-1
2-PI (C*V)
2.69 eV

9
C4N.q0.m4-3
4-A (C1)
3.37 eV

10
C4N.q0.m4-8
4-A' (CS)
3.58 eV

11
C4N.q0.m4-4
4-A" (CS)
3.60 eV

12
C4N.q0.m4-1
4-A" (CS)
3.62 eV

13
C4N.q0.m2-10
2-B2 (C2V)
4.14 eV

14
C4N.q0.m2-5
2-B2 (C2V)
4.29 eV

15
C4N.q0.m2-9
2-A' (CS)
4.41 eV

16
C4N.q0.m2-8
2-A1 (C3V)
4.49 eV

17
C4N.q0.m2-4
2-A' (CS)
4.49 eV

18
C4N.q0.m4-9
4-A" (CS)
5.74 eV

19
C4N.q0.m4-6
4-A1 (C2V)
5.75 eV

20
C4N.q0.m4-7
4-A' (CS)
6.30 eV

HCF_3

1
HCF3.q0.m1-1
1-A1 (C3V)
0.00 eV

CF_4

1
CF4.q0.m1-1
1-A1 (TD)
0.00 eV

H_4C_2

1
H4C2.q0.m1-1
1-AG (D2H)
0.00 eV

2
H4C2.q0.m3-2
3-A (C1)
3.13 eV

3
H4C2.q0.m1-2
1-A (C1)
3.30 eV

H_3C_3

1
H3C3.q0.m2-1
2-B1 (C2V)
0.00 eV

2
H3C3.q0.m2-3
2-A' (CS)
1.70 eV

3
H3C3.q0.m4-2
4-A" (CS)
3.16 eV

4
H3C3.q0.m4-3
4-A" (CS)
3.53 eV

5
H3C3.q0.m4-1
4-A" (CS)
3.71 eV

H_2C_4

1
H2C4.q0.m1-1
1-SGG (D*H)
0.00 eV

2
H2C4.q0.m1-4
1-A1 (C2V)
1.95 eV

3
H2C4.q0.m1-9
1-AG (C2H)
2.53 eV

4
H2C4.q0.m1-6
1-A1 (C2V)
3.05 eV

5
H2C4.q0.m3-9
3-A2 (C2V)
3.44 eV

6
H2C4.q0.m3-4
3-A (C1)
3.63 eV

7
H2C4.q0.m3-8
3-A2 (C2V)
3.81 eV

8
H2C4.q0.m3-3
3-AU (C2H)
3.84 eV

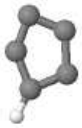
9
H2C4.q0.m3-2
3-A2 (C2V)
3.86 eV

10
H2C4.q0.m1-5
1-A (C1)
4.14 eV

11
H2C4.q0.m3-6
3-A (C1)
4.23 eV

12
H2C4.q0.m3-7
3-A (C1)
4.30 eV

13
H2C4.q0.m3-5
3-A (C1)
6.82 eV

HC_5				
 1 HC5.q0.m2-1 2-PI (C*V) 0.00 eV	 2 HC5.q0.m2-2 2-B2 (C2V) 0.10 eV	 3 HC5.q0.m2-3 2-A' (CS) 0.91 eV	 4 HC5.q0.m4-1 4-SG (C*V) 1.25 eV	 5 HC5.q0.m2-11 2-A' (CS) 1.53 eV
 6 HC5.q0.m2-8 2-A (C1) 2.01 eV	 7 HC5.q0.m2-4 2-B2 (C2V) 2.18 eV	 8 HC5.q0.m2-6 2-A' (CS) 2.20 eV	 9 HC5.q0.m4-13 4-A" (CS) 2.65 eV	 10 HC5.q0.m4-2 4-A" (CS) 2.71 eV
 11 HC5.q0.m2-15 2-A1 (C3V) 2.77 eV	 12 HC5.q0.m2-14 2-B2 (C2V) 2.80 eV	 13 HC5.q0.m4-6 4-A" (CS) 2.92 eV	 14 HC5.q0.m2-9 2-A (C1) 2.98 eV	 15 HC5.q0.m4-4 4-A2 (C2V) 3.16 eV
 16 HC5.q0.m4-3 4-A" (CS) 3.25 eV	 17 HC5.q0.m4-11 4-A (C1) 3.41 eV	 18 HC5.q0.m2-10 2-A" (CS) 3.70 eV	 19 HC5.q0.m4-12 4-A' (CS) 3.75 eV	 20 HC5.q0.m4-5 4-A' (CS) 3.99 eV
 21 HC5.q0.m4-9 4-A" (CS) 4.09 eV	 22 HC5.q0.m4-7 4-A" (CS) 4.33 eV	 23 HC5.q0.m4-15 4-A" (CS) 4.42 eV	 24 HC5.q0.m4-14 4-A (C1) 4.90 eV	 25 HC5.q0.m4-10 4-A' (CS) 5.46 eV

C_6

1
C6.q0.m1-2
1-A1' (D3H)
0.00 eV

2
C6.q0.m3-1
3-SGG (D*H)
0.62 eV

3
C6.q0.m1-1
1-SGG (D*H)
0.77 eV

4
C6.q0.m3-2
3-B2 (C2V)
1.39 eV

5
C6.q0.m1-5
1-A1 (C2V)
1.45 eV

6
C6.q0.m1-4
1-AG (D2H)
1.75 eV

7
C6.q0.m1-6
1-A' (CS)
2.51 eV

8
C6.q0.m3-5
3-B1 (C2V)
3.34 eV

9
C6.q0.m1-7
1-A1 (C2V)
3.89 eV

10
C6.q0.m3-3
3-A (C1)
4.58 eV

11
C6.q0.m3-4
3-A (C1)
5.10 eV

12
C6.q0.m3-6
3-A" (CS)
5.54 eV

H_5C_2

1
H5C2.q0.m2-5
2-A' (CS)
0.00 eV

H_4C_3

1
H4C3.q0.m1-1
1-A1 (C3V)
0.00 eV

2
H4C3.q0.m1-2
1-A1 (D2D)
0.06 eV

3
H4C3.q0.m1-6
1-A' (CS)
1.01 eV

4
H4C3.q0.m3-2
3-A2 (C2V)
2.34 eV

5
H4C3.q0.m3-4
3-A" (CS)
2.35 eV

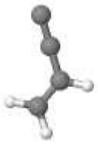
6
H4C3.q0.m1-4
1-A (C1)
2.71 eV

7
H4C3.q0.m1-5
1-A1 (C2V)
2.93 eV

8
H4C3.q0.m3-5
3-B1 (C2V)
3.57 eV

9
H4C3.q0.m3-6
3-B (C2)
3.71 eV

10
H4C3.q0.m3-3
3-A (C1)
4.05 eV

H_3C_4				
 1 H3C4.q0.m2-2 2-B2 (C2V) 0.00 eV	 2 H3C4.q0.m2-5 2-A' (CS) 0.42 eV	 3 H3C4.q0.m2-13 2-A" (CS) 1.16 eV	 4 H3C4.q0.m2-3 2-A (C1) 1.18 eV	 5 H3C4.q0.m2-7 2-A (C1) 1.18 eV
 6 H3C4.q0.m2-10 2-A (C1) 1.40 eV	 7 H3C4.q0.m2-12 2-A" (CS) 1.46 eV	 8 H3C4.q0.m2-1 2-A" (CS) 1.60 eV	 9 H3C4.q0.m2-14 2-A (C1) 1.99 eV	 10 H3C4.q0.m4-12 4-B2 (C2V) 2.25 eV
 11 H3C4.q0.m4-2 4-A (C1) 2.35 eV	 12 H3C4.q0.m2-4 2-A' (CS) 2.44 eV	 13 H3C4.q0.m2-8 2-A (C1) 2.70 eV	 14 H3C4.q0.m4-1 4-A1 (C3V) 3.03 eV	 15 H3C4.q0.m4-5 4-A (C1) 3.10 eV
 16 H3C4.q0.m4-14 4-A" (CS) 3.32 eV	 17 H3C4.q0.m4-7 4-A" (CS) 3.56 eV	 18 H3C4.q0.m4-3 4-A" (CS) 3.73 eV	 19 H3C4.q0.m4-13 4-A (C1) 3.75 eV	 20 H3C4.q0.m4-8 4-A" (CS) 3.94 eV
 21 H3C4.q0.m4-4 4-A" (CS) 4.29 eV	 22 H3C4.q0.m4-10 4-A (C1) 4.30 eV	 23 H3C4.q0.m4-6 4-A (C1) 4.49 eV	 24 H3C4.q0.m4-9 4-A (C1) 4.68 eV	

H_2C_5				
 1 H2C5.q0.m1-6 1-A' (CS) 0.00 eV	 2 H2C5.q0.m3-1 3-SG (C*V) 0.21 eV	 3 H2C5.q0.m1-2 1-A (C1) 0.61 eV	 4 H2C5.q0.m1-14 1-A' (CS) 0.67 eV	 5 H2C5.q0.m1-15 1-A1 (C2V) 0.77 eV
 6 H2C5.q0.m1-4 1-A1 (C2V) 0.82 eV	 7 H2C5.q0.m1-17 1-A1 (C2V) 0.99 eV	 8 H2C5.q0.m3-2 3-A (C2) 1.72 eV	 9 H2C5.q0.m1-29 1-A (C2) 1.84 eV	 10 H2C5.q0.m1-12 1-A (C1) 1.86 eV
 11 H2C5.q0.m1-30 1-A (C1) 1.89 eV	 12 H2C5.q0.m3-14 3-A (C1) 1.91 eV	 13 H2C5.q0.m1-28 1-A' (CS) 2.19 eV	 14 H2C5.q0.m3-29 3-A2 (C2V) 2.30 eV	 15 H2C5.q0.m1-25 1-A (C1) 2.44 eV
 16 H2C5.q0.m1-16 1-A (C1) 2.51 eV	 17 H2C5.q0.m3-6 3-A" (CS) 2.64 eV	 18 H2C5.q0.m1-31 1-A' (CS) 2.64 eV	 19 H2C5.q0.m3-20 3-A (C1) 2.78 eV	 20 H2C5.q0.m3-17 3-A" (CS) 2.83 eV
 21 H2C5.q0.m1-27 1-A (C1) 2.84 eV	 22 H2C5.q0.m3-28 3-B2 (C2V) 2.87 eV	 23 H2C5.q0.m3-4 3-A (C1) 2.89 eV	 24 H2C5.q0.m1-26 1-A (C1) 2.91 eV	 25 H2C5.q0.m3-10 3-A (C1) 2.95 eV
 26 H2C5.q0.m3-8 3-A (C1) 3.05 eV	 27 H2C5.q0.m1-13 1-A1 (C2V) 3.25 eV	 28 H2C5.q0.m3-25 3-A" (CS) 3.42 eV	 29 H2C5.q0.m3-3 3-A" (CS) 3.42 eV	 30 H2C5.q0.m3-26 3-A" (CS) 3.52 eV

H_2C_5 (*Continued from previous page*)				
 31 H2C5.q0.m3-19 3-A (C1) 3.62 eV	 32 H2C5.q0.m3-16 3-A" (CS) 3.65 eV	 33 H2C5.q0.m1-21 1-A' (CS) 3.70 eV	 34 H2C5.q0.m3-30 3-A' (CS) 3.84 eV	 35 H2C5.q0.m3-5 3-A (C1) 3.84 eV
 36 H2C5.q0.m3-27 3-A (C1) 3.94 eV	 37 H2C5.q0.m3-18 3-A" (CS) 4.05 eV	 38 H2C5.q0.m3-12 3-A (C1) 4.09 eV	 39 H2C5.q0.m3-21 3-A" (CS) 4.11 eV	 40 H2C5.q0.m3-31 3-A" (CS) 4.14 eV
 41 H2C5.q0.m3-13 3-A (C1) 4.21 eV	 42 H2C5.q0.m1-18 1-A (C1) 4.39 eV	 43 H2C5.q0.m3-22 3-A (C1) 4.47 eV	 44 H2C5.q0.m3-24 3-A' (CS) 4.89 eV	 45 H2C5.q0.m3-7 3-A (C1) 5.09 eV
 46 H2C5.q0.m3-9 3-A (C1) 5.26 eV	 47 H2C5.q0.m3-23 3-A (C1) 5.70 eV			

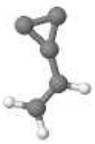
C_7				
 1 C7.q0.m1-1 1-SGG (D*H) 0.00 eV	 2 C7.q0.m1-2 1-A1 (C2V) 0.52 eV	 3 C7.q0.m3-2 3-A' (CS) 1.08 eV	 4 C7.q0.m3-1 3-A2 (C2V) 1.93 eV	 5 C7.q0.m1-7 1-A1 (C2V) 2.65 eV
 6 C7.q0.m1-3 1-A' (CS) 2.81 eV	 7 C7.q0.m1-6 1-A' (CS) 3.51 eV	 8 C7.q0.m1-8 1-A' (CS) 3.78 eV	 9 C7.q0.m1-5 1-A (C1) 4.92 eV	

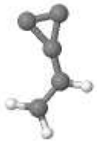
H_6C_2
 1 H6C2.q0.m1-5 1-A1G (D3D) 0.00 eV

H_5C_3				
 1 H5C3.q0.m2-6 2-A2 (C2V) 0.00 eV	 2 H5C3.q0.m2-8 2-A' (CS) 0.86 eV	 3 H5C3.q0.m2-9 2-A' (CS) 1.01 eV	 4 H5C3.q0.m4-7 4-A2 (C2V) 3.58 eV	 5 H5C3.q0.m4-8 4-A (C1) 4.05 eV
 6 H5C3.q0.m4-9 4-A (C1) 4.14 eV				

H_4C_4				
 1 H4C4.q0.m1-6 1-A' (CS) 0.00 eV	 2 H4C4.q0.m1-19 1-AG (D2H) 0.36 eV	 3 H4C4.q0.m1-4 1-A1 (C2V) 1.03 eV	 4 H4C4.q0.m1-13 1-AG (D2H) 1.46 eV	 5 H4C4.q0.m1-3 1-A (C1) 1.53 eV
 6 H4C4.q0.m1-14 1-A (C1) 1.85 eV	 7 H4C4.q0.m3-13 3-A1G (D4H) 1.98 eV	 8 H4C4.q0.m3-19 3-A1 (D2D) 2.00 eV	 9 H4C4.q0.m1-12 1-A (C1) 2.05 eV	 10 H4C4.q0.m1-15 1-A' (CS) 2.17 eV
 11 H4C4.q0.m1-1 1-A (C1) 2.19 eV	 12 H4C4.q0.m1-11 1-A (C1) 2.31 eV	 13 H4C4.q0.m1-18 1-A1 (TD) 2.60 eV	 14 H4C4.q0.m3-6 3-A (C1) 2.63 eV	 15 H4C4.q0.m1-2 1-A (C1) 2.69 eV
 16 H4C4.q0.m1-17 1-A' (CS) 2.83 eV	 17 H4C4.q0.m3-4 3-A (C1) 2.87 eV	 18 H4C4.q0.m3-14 3-A" (CS) 2.87 eV	 19 H4C4.q0.m3-15 3-A2 (C2V) 3.01 eV	 20 H4C4.q0.m1-5 1-A (C1) 3.10 eV
 21 H4C4.q0.m3-5 3-A" (CS) 3.37 eV	 22 H4C4.q0.m3-7 3-BU (C2H) 3.47 eV	 23 H4C4.q0.m3-1 3-A (C1) 3.69 eV	 24 H4C4.q0.m3-3 3-A (C1) 3.85 eV	 25 H4C4.q0.m1-7 1-A' (CS) 3.94 eV
 26 H4C4.q0.m3-16 3-B2 (C2V) 3.96 eV	 27 H4C4.q0.m3-18 3-A (C1) 3.99 eV	 28 H4C4.q0.m3-12 3-A (C1) 4.05 eV	 29 H4C4.q0.m3-8 3-A (C1) 4.27 eV	 30 H4C4.q0.m3-17 3-B2 (C2V) 4.33 eV

H_4C_4 (*Continued from previous page*)	
	
31 H4C4.q0.m3-9 3-A (C1) 4.68 eV	32 H4C4.q0.m3-10 3-A (C1) 5.73 eV

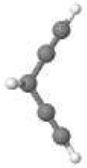
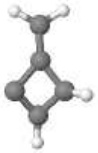
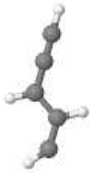
H_3C_5				
 1 H3C5.q0.m2-2 2-A (C1) 0.00 eV	 2 H3C5.q0.m2-27 2-B1 (C2V) 0.04 eV	 3 H3C5.q0.m2-50 2-A" (CS) 1.42 eV	 4 H3C5.q0.m2-37 2-A" (CS) 1.60 eV	 5 H3C5.q0.m2-1 2-A (C1) 1.70 eV
 6 H3C5.q0.m2-9 2-A' (CS) 1.76 eV	 7 H3C5.q0.m2-3 2-A" (CS) 1.81 eV	 8 H3C5.q0.m2-10 2-A (C1) 1.93 eV	 9 H3C5.q0.m2-22 2-A (C1) 1.93 eV	 10 H3C5.q0.m2-8 2-A" (CS) 2.08 eV
 11 H3C5.q0.m4-50 4-B2 (C2V) 2.09 eV	 12 H3C5.q0.m4-49 4-A2 (C2V) 2.16 eV	 13 H3C5.q0.m2-28 2-A (C1) 2.21 eV	 14 H3C5.q0.m2-5 2-A' (CS) 2.23 eV	 15 H3C5.q0.m2-32 2-A" (CS) 2.30 eV
 16 H3C5.q0.m2-25 2-A (C1) 2.45 eV	 17 H3C5.q0.m2-33 2-A (C1) 2.49 eV	 18 H3C5.q0.m2-47 2-A (C1) 2.64 eV	 19 H3C5.q0.m2-36 2-A (C1) 2.69 eV	 20 H3C5.q0.m4-7 4-A (C1) 2.71 eV
 21 H3C5.q0.m2-51 2-B1 (C2V) 2.75 eV	 22 H3C5.q0.m2-4 2-A' (CS) 2.77 eV	 23 H3C5.q0.m2-48 2-A' (CS) 2.84 eV	 24 H3C5.q0.m4-2 4-A (C1) 2.90 eV	 25 H3C5.q0.m2-6 2-A' (CS) 2.91 eV
 26 H3C5.q0.m2-40 2-A (C1) 2.97 eV	 27 H3C5.q0.m2-24 2-A (C1) 3.03 eV	 28 H3C5.q0.m2-35 2-A' (CS) 3.19 eV	 29 H3C5.q0.m4-3 4-A" (CS) 3.25 eV	 30 H3C5.q0.m4-36 4-A" (CS) 3.49 eV

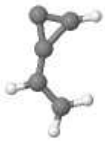
H_3C_5 (*Continued from previous page*)				
 31 H3C5.q0.m2-39 2-A (C1) 3.50 eV	 32 H3C5.q0.m2-53 2-A' (CS) 3.54 eV	 33 H3C5.q0.m2-34 2-A (C1) 3.59 eV	 34 H3C5.q0.m4-40 4-A" (CS) 3.60 eV	 35 H3C5.q0.m4-8 4-A" (CS) 3.61 eV
 36 H3C5.q0.m4-31 4-A" (CS) 3.63 eV	 37 H3C5.q0.m4-33 4-A" (CS) 3.65 eV	 38 H3C5.q0.m4-48 4-A" (CS) 3.79 eV	 39 H3C5.q0.m4-13 4-A (C1) 3.84 eV	 40 H3C5.q0.m2-18 2-A (C1) 3.90 eV
 41 H3C5.q0.m2-46 2-A (C1) 3.92 eV	 42 H3C5.q0.m4-32 4-A' (CS) 3.94 eV	 43 H3C5.q0.m2-12 2-A (C1) 3.95 eV	 44 H3C5.q0.m4-27 4-A2 (C2V) 3.97 eV	 45 H3C5.q0.m4-47 4-A (C1) 3.99 eV
 46 H3C5.q0.m4-25 4-A" (CS) 4.00 eV	 47 H3C5.q0.m4-4 4-A" (CS) 4.00 eV	 48 H3C5.q0.m4-37 4-A" (CS) 4.04 eV	 49 H3C5.q0.m4-22 4-A" (CS) 4.06 eV	 50 H3C5.q0.m2-38 2-A' (CS) 4.16 eV
 51 H3C5.q0.m2-23 2-A" (CS) 4.17 eV	 52 H3C5.q0.m4-39 4-A (C1) 4.18 eV	 53 H3C5.q0.m4-5 4-A" (CS) 4.31 eV	 54 H3C5.q0.m4-1 4-A" (CS) 4.41 eV	 55 H3C5.q0.m4-10 4-A" (CS) 4.44 eV
 56 H3C5.q0.m4-9 4-A" (CS) 4.48 eV	 57 H3C5.q0.m2-14 2-A (C1) 4.55 eV	 58 H3C5.q0.m4-38 4-A (C1) 4.65 eV	 59 H3C5.q0.m4-15 4-A" (CS) 4.70 eV	 60 H3C5.q0.m4-43 4-A" (CS) 4.72 eV

H_3C_5 (*Continued from previous page*)				
 61 H3C5.q0.m2-26 2-A (C1) 4.73 eV	 62 H3C5.q0.m4-6 4-A" (CS) 4.77 eV	 63 H3C5.q0.m4-35 4-A (C1) 5.02 eV	 64 H3C5.q0.m4-11 4-A (C1) 5.12 eV	 65 H3C5.q0.m4-16 4-A" (CS) 5.17 eV
 66 H3C5.q0.m2-20 2-A (C1) 5.18 eV	 67 H3C5.q0.m4-19 4-A" (CS) 5.19 eV	 68 H3C5.q0.m4-24 4-A" (CS) 5.22 eV	 69 H3C5.q0.m4-46 4-A (C1) 5.29 eV	 70 H3C5.q0.m4-42 4-A (C1) 5.43 eV
 71 H3C5.q0.m4-41 4-A (C1) 5.53 eV	 72 H3C5.q0.m4-17 4-A (C1) 5.54 eV	 73 H3C5.q0.m4-18 4-A (C1) 5.62 eV	 74 H3C5.q0.m4-28 4-A (C1) 5.63 eV	 75 H3C5.q0.m4-12 4-A" (CS) 5.67 eV
 76 H3C5.q0.m4-23 4-A (C1) 5.68 eV	 77 H3C5.q0.m4-14 4-A (C1) 5.80 eV	 78 H3C5.q0.m4-26 4-A (C1) 6.19 eV	 79 H3C5.q0.m4-45 4-A" (CS) 6.52 eV	 80 H3C5.q0.m4-21 4-A (C1) 7.58 eV

C_8				
 1 C8.q0.m1-2 1-AG (C4H) 0.00 eV	 2 C8.q0.m1-1 1-SGG (D*H) 0.44 eV	 3 C8.q0.m3-1 3-SGG (D*H) 0.44 eV	 4 C8.q0.m3-2 3-A2G (D4H) 0.63 eV	 5 C8.q0.m1-4 1-A (C1) 0.98 eV
 6 C8.q0.m1-8 1-A1 (C2V) 2.10 eV	 7 C8.q0.m1-3 1-A' (CS) 2.40 eV	 8 C8.q0.m3-3 3-B1 (C2V) 3.38 eV	 9 C8.q0.m1-6 1-A' (CS) 4.38 eV	 10 C8.q0.m1-5 1-A' (CS) 5.63 eV

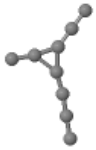
H_6C_3		
		
1 H6C3.q0.m1-4 1-A (C1) 0.00 eV	2 H6C3.q0.m1-3 1-A1' (D3H) 0.32 eV	3 H6C3.q0.m3-4 3-A (C1) 2.95 eV

H_4C_5				
 1 H4C5.q0.m1-1 1-A1 (C3V) 0.00 eV	 2 H4C5.q0.m1-28 1-A (C1) 0.26 eV	 3 H4C5.q0.m1-30 1-A' (CS) 0.44 eV	 4 H4C5.q0.m1-5 1-A' (CS) 1.05 eV	 5 H4C5.q0.m3-60 3-A" (CS) 1.05 eV
 6 H4C5.q0.m1-11 1-A (C1) 1.15 eV	 7 H4C5.q0.m1-4 1-A' (CS) 1.29 eV	 8 H4C5.q0.m1-60 1-A (C1) 1.38 eV	 9 H4C5.q0.m1-17 1-A (C1) 1.38 eV	 10 H4C5.q0.m1-46 1-A (C1) 1.73 eV
 11 H4C5.q0.m1-66 1-A1 (C4V) 1.78 eV	 12 H4C5.q0.m1-3 1-A' (CS) 1.83 eV	 13 H4C5.q0.m1-62 1-A (C1) 1.88 eV	 14 H4C5.q0.m3-5 3-A" (CS) 1.89 eV	 15 H4C5.q0.m1-41 1-A' (CS) 2.07 eV
 16 H4C5.q0.m1-63 1-A (C1) 2.09 eV	 17 H4C5.q0.m1-2 1-A' (CS) 2.11 eV	 18 H4C5.q0.m1-37 1-A' (CS) 2.19 eV	 19 H4C5.q0.m1-65 1-A (C1) 2.25 eV	 20 H4C5.q0.m1-42 1-A' (CS) 2.33 eV
 21 H4C5.q0.m3-11 3-A" (CS) 2.33 eV	 22 H4C5.q0.m1-59 1-A1 (C2V) 2.34 eV	 23 H4C5.q0.m3-13 3-A" (CS) 2.35 eV	 24 H4C5.q0.m1-6 1-A (C1) 2.39 eV	 25 H4C5.q0.m1-29 1-A (C1) 2.46 eV
 26 H4C5.q0.m1-68 1-A (C1) 2.51 eV	 27 H4C5.q0.m3-17 3-A" (CS) 2.51 eV	 28 H4C5.q0.m1-39 1-A' (CS) 2.54 eV	 29 H4C5.q0.m3-53 3-A" (CS) 2.58 eV	 30 H4C5.q0.m3-46 3-A" (CS) 2.59 eV

H_4C_5 (*Continued from previous page*)				
 31 H4C5.q0.m1-45 1-A (C1) 2.60 eV	 32 H4C5.q0.m1-47 1-A' (CS) 2.63 eV	 33 H4C5.q0.m3-59 3-B2 (C2V) 2.64 eV	 34 H4C5.q0.m1-14 1-A1 (C2V) 2.65 eV	 35 H4C5.q0.m3-65 3-A (C1) 2.68 eV
 36 H4C5.q0.m1-67 1-A' (CS) 2.69 eV	 37 H4C5.q0.m3-63 3-A (C1) 2.69 eV	 38 H4C5.q0.m3-41 3-A2 (C2V) 2.73 eV	 39 H4C5.q0.m1-53 1-A (C1) 2.86 eV	 40 H4C5.q0.m1-25 1-A' (CS) 2.95 eV
 41 H4C5.q0.m1-40 1-A (C1) 2.97 eV	 42 H4C5.q0.m3-32 3-B1 (C2V) 3.05 eV	 43 H4C5.q0.m1-38 1-A (C1) 3.09 eV	 44 H4C5.q0.m1-16 1-A' (CS) 3.09 eV	 45 H4C5.q0.m1-10 1-A' (CS) 3.10 eV
 46 H4C5.q0.m3-28 3-A" (CS) 3.16 eV	 47 H4C5.q0.m1-13 1-A (C1) 3.17 eV	 48 H4C5.q0.m3-3 3-A" (CS) 3.21 eV	 49 H4C5.q0.m1-61 1-A' (CS) 3.35 eV	 50 H4C5.q0.m3-47 3-A (C1) 3.39 eV
 51 H4C5.q0.m3-39 3-A" (CS) 3.42 eV	 52 H4C5.q0.m3-62 3-A" (CS) 3.43 eV	 53 H4C5.q0.m3-4 3-A" (CS) 3.45 eV	 54 H4C5.q0.m3-52 3-A' (CS) 3.54 eV	 55 H4C5.q0.m1-70 1-A1 (C2V) 3.55 eV
 56 H4C5.q0.m3-10 3-A" (CS) 3.55 eV	 57 H4C5.q0.m3-50 3-A' (CS) 3.59 eV	 58 H4C5.q0.m3-16 3-A" (CS) 3.63 eV	 59 H4C5.q0.m3-2 3-A (C1) 3.63 eV	 60 H4C5.q0.m3-42 3-A (C1) 3.73 eV

H_4C_5 (*Continued from previous page*)				
 61 H4C5.q0.m1-71 1-A (C1) 3.76 eV	 62 H4C5.q0.m3-18 3-A (C1) 3.84 eV	 63 H4C5.q0.m1-15 1-A1 (C2V) 3.85 eV	 64 H4C5.q0.m3-35 3-A (C1) 3.89 eV	 65 H4C5.q0.m3-44 3-A (C1) 3.93 eV
 66 H4C5.q0.m3-22 3-A (C1) 3.93 eV	 67 H4C5.q0.m1-69 1-A1 (C2V) 3.99 eV	 68 H4C5.q0.m3-37 3-A (C1) 4.03 eV	 69 H4C5.q0.m3-30 3-B (C2) 4.04 eV	 70 H4C5.q0.m1-23 1-A (C1) 4.14 eV
 71 H4C5.q0.m3-54 3-A (C1) 4.21 eV	 72 H4C5.q0.m3-6 3-A (C1) 4.24 eV	 73 H4C5.q0.m3-27 3-A" (CS) 4.30 eV	 74 H4C5.q0.m3-9 3-A (C1) 4.34 eV	 75 H4C5.q0.m3-8 3-A" (CS) 4.37 eV
 76 H4C5.q0.m3-61 3-B1 (C2V) 4.37 eV	 77 H4C5.q0.m1-31 1-A' (CS) 4.37 eV	 78 H4C5.q0.m3-29 3-A (C1) 4.37 eV	 79 H4C5.q0.m3-19 3-A (C1) 4.38 eV	 80 H4C5.q0.m3-25 3-A (C1) 4.38 eV
 81 H4C5.q0.m3-40 3-A (C1) 4.39 eV	 82 H4C5.q0.m3-15 3-A (C1) 4.39 eV	 83 H4C5.q0.m3-38 3-A" (CS) 4.40 eV	 84 H4C5.q0.m1-34 1-A (C2) 4.50 eV	 85 H4C5.q0.m3-45 3-A (C1) 4.50 eV
 86 H4C5.q0.m3-26 3-A (C1) 4.56 eV	 87 H4C5.q0.m1-49 1-A' (CS) 4.59 eV	 88 H4C5.q0.m3-7 3-A (C1) 4.67 eV	 89 H4C5.q0.m3-43 3-A (C1) 4.70 eV	 90 H4C5.q0.m3-33 3-A (C1) 4.74 eV

H_4C_5 (*Continued from previous page*)				
 91 H4C5.q0.m3-69 3-A' (CS) 4.75 eV	 92 H4C5.q0.m1-48 1-A' (CS) 4.76 eV	 93 H4C5.q0.m3-70 3-B1 (C2V) 4.76 eV	 94 H4C5.q0.m3-66 3-A' (CS) 4.81 eV	 95 H4C5.q0.m1-7 1-A (C1) 4.82 eV
 96 H4C5.q0.m3-48 3-A" (CS) 4.93 eV	 97 H4C5.q0.m3-64 3-A" (CS) 4.96 eV	 98 H4C5.q0.m1-64 1-A' (CS) 5.07 eV	 99 H4C5.q0.m3-24 3-A (C1) 5.08 eV	 100 H4C5.q0.m3-71 3-A (C1) 5.14 eV
 101 H4C5.q0.m1-12 1-A (C1) 5.26 eV	 102 H4C5.q0.m3-68 3-B1 (C2V) 5.47 eV	 103 H4C5.q0.m3-51 3-A (C1) 5.59 eV	 104 H4C5.q0.m3-49 3-A" (CS) 5.67 eV	 105 H4C5.q0.m3-58 3-A (C1) 5.80 eV
 106 H4C5.q0.m3-31 3-A (C1) 6.22 eV	 107 H4C5.q0.m3-23 3-A (C1) 6.29 eV	 108 H4C5.q0.m3-21 3-A (C1) 6.62 eV	 109 H4C5.q0.m3-20 3-A (C1) 7.05 eV	

C_9				
 1 C9.q0.m1-1 1-SGG (D*H) 0.00 eV	 2 C9.q0.m1-2 1-A (C1) 0.25 eV	 3 C9.q0.m1-4 1-A (C1) 0.51 eV	 4 C9.q0.m3-2 3-A" (CS) 0.84 eV	 5 C9.q0.m1-3 1-A' (CS) 1.19 eV
 6 C9.q0.m3-1 3-PIG (D*H) 1.53 eV	 7 C9.q0.m1-7 1-A (C1) 2.25 eV	 8 C9.q0.m3-4 3-A (C1) 2.78 eV	 9 C9.q0.m1-9 1-A (C1) 2.84 eV	 10 C9.q0.m1-6 1-A' (CS) 3.62 eV
 11 C9.q0.m1-8 1-A1 (C2V) 4.35 eV	 12 C9.q0.m1-10 1-A (C2) 5.09 eV	 13 C9.q0.m3-3 3-A" (CS) 5.62 eV	 14 C9.q0.m1-11 1-A (C1) 5.91 eV	 15 C9.q0.m3-5 3-A" (CS) 6.57 eV

H^+
 1 H.q1.m1-1 1-S (R3) 0.00 eV

C^+	
 1 C.q1.m2-1 2-P (R3) 0.00 eV	 2 C.q1.m4-1 4-P (R3) 5.27 eV

F^+	
	
1 F.q1.m3-1 3-P (R3) 0.00 eV	2 F.q1.m1-1 1-D (R3) 2.82 eV

H_2^+

1 H2.q1.m2-1 2-SGG (D*H) 0.00 eV

HC^+	
	
1 HC.q1.m1-1 1-SG (C*V) 0.00 eV	2 HC.q1.m3-1 3-PI (C*V) 1.15 eV

HF^+

1 HF.q1.m2-1 2-PI (C*V) 0.00 eV

C_2^+		
		
1 C2.q1.m4-1 4-SGG (D*H) 0.00 eV	2 C2.q1.m2-2 2-PIU (D*H) 0.59 eV	3 C2.q1.m2-1 2-DLTG (D*H) 1.78 eV

CF^+	
	
1 CF.q1.m1-1 1-SG (C*V) 0.00 eV	2 CF.q1.m3-1 3-PI (C*V) 4.80 eV

F_2^+

1 F2.q1.m2-1 2-PIG (D*H) 0.00 eV

H_3^+	
	
1 H3.q1.m1-1 1-A1' (D3H) 0.00 eV	2 H3.q1.m3-1 3-SGU (D*H) 6.16 eV

H_2C^+	
	
1 H2C.q1.m2-2 2-A1 (C2V) 0.00 eV	2 H2C.q1.m4-2 4-A2 (C2V) 3.74 eV

H_2F^+

1 H2F.q1.m1-1 1-A1 (C2V) 0.00 eV

HC_2^+	
	
1 HC2.q1.m3-1 3-PI (C*V) 0.00 eV	2 HC2.q1.m1-2 1-A' (CS) 0.84 eV

HCF^+		
		
1 HCF.q1.m2-2 2-A' (CS) 0.00 eV	2 HCF.q1.m2-1 2-A' (CS) 2.60 eV	3 HCF.q1.m4-1 4-A" (CS) 5.78 eV

C_3^+				
				
1 C3.q1.m2-1 2-B2 (C2V) 0.00 eV	2 C3.q1.m2-2-nl 2-A' (CS) 0.48 eV	3 C3.q1.m2-2 2-SG (C*V) 0.48 eV	4 C3.q1.m4-1 4-A1' (D3H) 0.79 eV	5 C3.q1.m4-2 4-PIU (D*H) 1.98 eV

HF_2^+	
	
1 HF2.q1.m1-1 1-A' (CS) 0.00 eV	2 HF2.q1.m3-1 3-A" (CS) 0.79 eV

CF_2^+	
	
1 CF2.q1.m2-1 2-A1 (C2V) 0.00 eV	2 CF2.q1.m4-1 4-A2 (C2V) 7.14 eV

F_3^+

1 F3.q1.m1-1 1-A1 (C2V) 0.00 eV

H_4^+

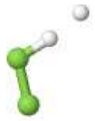
1 H4.q1.m2-1 2-A1 (C2V) 0.00 eV

H_3C^+	
	
1 H3C.q1.m1-1 1-A1' (D3H) 0.00 eV	2 H3C.q1.m3-1 3-A (C1) 3.68 eV

$H_2C_2^+$				
				
1 H2C2.q1.m2-1 2-PIU (D*H) 0.00 eV	2 H2C2.q1.m2-3 2-A' (CS) 1.93 eV	3 H2C2.q1.m4-4 4-A2 (C2V) 3.24 eV	4 H2C2.q1.m4-3 4-A2 (C2V) 3.39 eV	5 H2C2.q1.m4-2 4-BG (C2H) 3.59 eV

H_2CF^+				
				
1 H2CF.q1.m1-2 1-A1 (C2V) 0.00 eV	2 H2CF.q1.m1-1 1-A' (CS) 3.78 eV	3 H2CF.q1.m1-3 1-A (C1) 3.99 eV	4 H2CF.q1.m3-2 3-A" (CS) 4.31 eV	5 H2CF.q1.m3-1 3-A (C1) 4.46 eV

HC_3^+			
			
1 HC3.q1.m1-1 1-SG (C*V) 0.00 eV	2 HC3.q1.m3-3 3-B2 (C2V) 0.91 eV	3 HC3.q1.m3-1 3-PI (C*V) 1.78 eV	4 HC3.q1.m1-2 1-A1 (C2V) 2.42 eV

$H_2F_2^+$

1 H2F2.q1.m2-1 2-A' (CS) 0.00 eV

C_4^+				
				
1 C4.q1.m2-2 2-A' (CS) 0.00 eV	2 C4.q1.m2-1 2-PIG (D*H) 0.13 eV	3 C4.q1.m4-3 4-B1 (C2V) 0.43 eV	4 C4.q1.m4-1 4-B3U (D2H) 0.48 eV	5 C4.q1.m4-2 4-A2 (C2V) 1.22 eV

HCF_2^+				
				
1 HCF2.q1.m1-1 1-A1 (C2V) 0.00 eV	2 HCF2.q1.m3-3 3-A (C1) 5.53 eV	3 HCF2.q1.m3-4 3-A (C1) 5.53 eV	4 HCF2.q1.m3-2 3-A (C1) 5.83 eV	5 HCF2.q1.m3-1 3-A (C1) 6.57 eV

CF_3^+

1 CF3.q1.m1-1 1-A1' (D3H) 0.00 eV

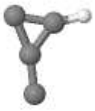
H_4C^+

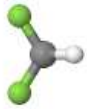
1 H4C.q1.m2-1 2-B2 (D2D) 0.00 eV

$H_3C_2^+$		
		
1 H3C2.q1.m1-1 1-A' (CS) 0.00 eV	2 H3C2.q1.m3-1 3-A" (CS) 1.96 eV	3 H3C2.q1.m1-2 1-A' (CS) 1.97 eV

H_3CF^+	
	
1 H3CF.q1.m2-1 2-A (C1) 0.00 eV	2 H3CF.q1.m2-2 2-A" (CS) 0.14 eV

$H_2C_3^+$				
				
1 H2C3.q1.m2-5 2-A1 (C2V) 0.00 eV	2 H2C3.q1.m2-1 2-PIG (D*H) 0.41 eV	3 H2C3.q1.m2-2 2-A' (CS) 1.96 eV	4 H2C3.q1.m4-2 4-A (C1) 3.35 eV	5 H2C3.q1.m4-4 4-A2 (C2V) 4.15 eV
				
6 H2C3.q1.m4-3 4-A (C1) 4.31 eV				

HC_4^+				
 1 HC4.q1.m3-1 3-A" (CS) 0.00 eV	 2 HC4.q1.m1-6 1-A1 (C2V) 0.08 eV	 3 HC4.q1.m1-1 1-PI (C*V) 0.53 eV	 4 HC4.q1.m1-5 1-A1 (C2V) 1.16 eV	 5 HC4.q1.m3-5 3-A" (CS) 1.23 eV
 6 HC4.q1.m1-3 1-A' (CS) 1.25 eV	 7 HC4.q1.m3-3 3-A" (CS) 1.30 eV	 8 HC4.q1.m3-4 3-A2 (C2V) 1.72 eV		

$H_2CF_2^+$
 1 H2CF2.q1.m2-1 2-B1 (C2V) 0.00 eV

C_5^+				
 1 C5.q1.m2-1 2-SGU (D*H) 0.00 eV	 2 C5.q1.m4-1 4-PIG (D*H) 1.24 eV	 3 C5.q1.m2-2 2-A1 (C2V) 1.30 eV	 4 C5.q1.m2-4 2-A (C1) 1.52 eV	 5 C5.q1.m2-3 2-A1 (C2V) 1.59 eV
 6 C5.q1.m4-3 4-A (C1) 2.34 eV	 7 C5.q1.m4-2 4-A2 (C2V) 3.88 eV			

HCF_3^+

1 HCF3.q1.m2-1 2-A1 (C3V) 0.00 eV

CF_4^+

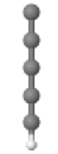
1 CF4.q1.m2-1 2-T1 (TD) 0.00 eV

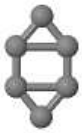
$H_4C_2^+$

1 H4C2.q1.m4-2 4-A (C1) 0.00 eV

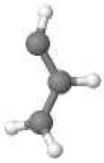
$H_3C_3^+$				
				
1 H3C3.q1.m1-2 1-A1' (D3H) 0.00 eV	2 H3C3.q1.m1-1 1-A1 (C2V) 1.26 eV	3 H3C3.q1.m1-3 1-A' (CS) 3.07 eV	4 H3C3.q1.m3-1 3-A2 (C2V) 3.15 eV	5 H3C3.q1.m3-3 3-A (C1) 4.41 eV

$H_2C_4^+$				
 1 H2C4.q1.m2-1 2-PIG (D*H) 0.00 eV	 2 H2C4.q1.m2-9 2-B2G (D2H) 0.76 eV	 3 H2C4.q1.m2-4 2-B2 (C2V) 1.71 eV	 4 H2C4.q1.m2-7 2-A" (CS) 1.89 eV	 5 H2C4.q1.m4-2 4-B1 (C2V) 2.83 eV
 6 H2C4.q1.m4-8 4-A2 (C2V) 3.19 eV	 7 H2C4.q1.m4-4 4-A2 (C2V) 3.22 eV	 8 H2C4.q1.m4-9 4-A2 (C2V) 3.52 eV	 9 H2C4.q1.m4-7 4-A" (CS) 3.60 eV	 10 H2C4.q1.m4-6 4-A" (CS) 3.97 eV
 11 H2C4.q1.m4-5 4-A (C1) 6.92 eV				

HC_5^+				
 1 HC5.q1.m1-1 1-SG (C*V) 0.00 eV	 2 HC5.q1.m3-2 3-B2 (C2V) 1.49 eV	 3 HC5.q1.m3-1 3-PI (C*V) 1.69 eV	 4 HC5.q1.m1-12 1-A1 (C2V) 1.93 eV	 5 HC5.q1.m3-3 3-A' (CS) 2.13 eV
 6 HC5.q1.m1-3 1-A (C1) 2.49 eV	 7 HC5.q1.m3-11 3-B2 (C2V) 2.86 eV	 8 HC5.q1.m3-12 3-B2 (C2V) 2.96 eV	 9 HC5.q1.m3-8 3-A (C1) 3.01 eV	 10 HC5.q1.m1-8 1-A (C1) 3.21 eV
 11 HC5.q1.m1-5 1-A' (CS) 3.34 eV	 12 HC5.q1.m1-16 1-A1 (C2V) 3.72 eV	 13 HC5.q1.m3-6 3-A' (CS) 3.74 eV	 14 HC5.q1.m1-4 1-A1 (C2V) 3.76 eV	 15 HC5.q1.m3-4 3-B2 (C2V) 3.85 eV
 16 HC5.q1.m1-9 1-A (C1) 3.94 eV	 17 HC5.q1.m3-9 3-A (C1) 4.39 eV	 18 HC5.q1.m3-15 3-A (C1) 4.75 eV	 19 HC5.q1.m3-14 3-A" (CS) 5.02 eV	 20 HC5.q1.m3-10 3-A" (CS) 5.18 eV

C_6^+				
 1 C6.q1.m2-10 2-PIU (D*H) 0.00 eV	 2 C6.q1.m2-7 2-AG (D2H) 0.69 eV	 3 C6.q1.m4-11 4-B1 (C2V) 1.35 eV	 4 C6.q1.m4-8 4-A" (CS) 1.47 eV	 5 C6.q1.m2-3 2-B3G (D2H) 1.51 eV
 6 C6.q1.m4-1 4-A' (CS) 1.69 eV	 7 C6.q1.m2-1 2-A1 (C2V) 2.30 eV	 8 C6.q1.m2-9 2-A (C1) 2.80 eV	 9 C6.q1.m2-6 2-A (C1) 3.22 eV	 10 C6.q1.m2-12 2-A (C1) 3.24 eV
 11 C6.q1.m4-6 4-A (C1) 3.71 eV	 12 C6.q1.m4-2 4-A (C1) 3.76 eV	 13 C6.q1.m4-12 4-A (C1) 3.78 eV	 14 C6.q1.m4-5 4-A (C1) 4.10 eV	

$H_5C_2^+$
 1 H5C2.q1.m3-5 3-A (C1) 0.00 eV

$H_4C_3^+$				
 1 H4C3.q1.m2-2 2-B2 (D2) 0.00 eV	 2 H4C3.q1.m2-1 2-A (C1) 0.61 eV	 3 H4C3.q1.m2-4 2-A (C1) 0.91 eV	 4 H4C3.q1.m2-6 2-A (C1) 0.93 eV	 5 H4C3.q1.m2-3 2-A (C1) 2.78 eV
 6 H4C3.q1.m4-2 4-B1 (C2V) 3.16 eV	 7 H4C3.q1.m4-4 4-A (C1) 3.29 eV	 8 H4C3.q1.m4-6 4-A (C1) 4.00 eV	 9 H4C3.q1.m4-1 4-A" (CS) 4.11 eV	 10 H4C3.q1.m4-3 4-A" (CS) 4.12 eV
 11 H4C3.q1.m4-5 4-A" (CS) 4.23 eV				

$H_3C_4^+$				
 1 H3C4.q1.m1-2 1-A1 (C2V) 0.00 eV	 2 H3C4.q1.m1-13 1-A1 (C2V) 0.43 eV	 3 H3C4.q1.m1-5 1-A' (CS) 0.76 eV	 4 H3C4.q1.m1-15 1-A' (CS) 1.04 eV	 5 H3C4.q1.m1-7 1-A' (CS) 1.24 eV
 6 H3C4.q1.m3-5 3-A" (CS) 1.53 eV	 7 H3C4.q1.m3-2 3-A2 (C2V) 1.61 eV	 8 H3C4.q1.m1-1 1-A1 (C3V) 1.83 eV	 9 H3C4.q1.m3-7 3-A" (CS) 1.89 eV	 10 H3C4.q1.m3-12 3-A" (CS) 2.11 eV
 11 H3C4.q1.m1-3 1-A' (CS) 2.78 eV	 12 H3C4.q1.m3-3 3-A" (CS) 2.98 eV	 13 H3C4.q1.m3-10 3-A (C1) 3.05 eV	 14 H3C4.q1.m3-13 3-A" (CS) 3.18 eV	 15 H3C4.q1.m3-14 3-A (C1) 3.23 eV
 16 H3C4.q1.m3-15 3-A' (CS) 3.63 eV	 17 H3C4.q1.m3-1 3-A" (CS) 3.73 eV	 18 H3C4.q1.m3-4 3-A" (CS) 4.18 eV	 19 H3C4.q1.m3-11 3-A (C1) 4.24 eV	 20 H3C4.q1.m1-11 1-A (C1) 4.75 eV
 21 H3C4.q1.m1-10 1-A (C1) 4.83 eV	 22 H3C4.q1.m3-8 3-A (C1) 5.02 eV			

$H_2C_5^+$				
 1 H2C5.q1.m2-6 2-A (C1) 0.00 eV	 2 H2C5.q1.m2-4 2-A1 (C2V) 0.76 eV	 3 H2C5.q1.m2-20 2-A' (CS) 1.20 eV	 4 H2C5.q1.m2-2 2-B1 (C2V) 1.30 eV	 5 H2C5.q1.m2-29 2-B (C2) 1.48 eV
 6 H2C5.q1.m2-14 2-A' (CS) 1.72 eV	 7 H2C5.q1.m2-28 2-A1 (C2V) 1.76 eV	 8 H2C5.q1.m2-17 2-A1 (C2V) 1.79 eV	 9 H2C5.q1.m4-1 4-PIG (D*H) 1.87 eV	 10 H2C5.q1.m2-12 2-A' (CS) 2.22 eV
 11 H2C5.q1.m4-2 4-A (C1) 2.55 eV	 12 H2C5.q1.m2-25 2-A (C1) 2.88 eV	 13 H2C5.q1.m2-30 2-A' (CS) 2.95 eV	 14 H2C5.q1.m4-29 4-A' (CS) 3.11 eV	 15 H2C5.q1.m2-26 2-A' (CS) 3.18 eV
 16 H2C5.q1.m2-27 2-A" (CS) 3.18 eV	 17 H2C5.q1.m2-31 2-A' (CS) 3.24 eV	 18 H2C5.q1.m4-28 4-A1 (C2V) 3.27 eV	 19 H2C5.q1.m2-21 2-B1 (C2V) 3.38 eV	 20 H2C5.q1.m4-14 4-A" (CS) 3.53 eV
 21 H2C5.q1.m2-24 2-A" (CS) 3.56 eV	 22 H2C5.q1.m4-4 4-A2 (C2V) 3.59 eV	 23 H2C5.q1.m4-10 4-A (C1) 3.64 eV	 24 H2C5.q1.m4-20 4-A (C1) 3.65 eV	 25 H2C5.q1.m4-6 4-A (C1) 3.69 eV
 26 H2C5.q1.m4-12 4-A' (CS) 3.82 eV	 27 H2C5.q1.m4-27 4-A" (CS) 3.92 eV	 28 H2C5.q1.m4-17 4-A" (CS) 3.93 eV	 29 H2C5.q1.m4-19 4-A (C1) 3.94 eV	 30 H2C5.q1.m4-21 4-A2 (C2V) 4.17 eV

$H_2C_5^+$ (*Continued from previous page*)				
 31 H2C5.q1.m4-26 4-A' (CS) 4.20 eV	 32 H2C5.q1.m4-25 4-A' (CS) 4.33 eV	 33 H2C5.q1.m2-5 2-A' (CS) 4.38 eV	 34 H2C5.q1.m4-3 4-A" (CS) 4.39 eV	 35 H2C5.q1.m4-8 4-A" (CS) 4.58 eV
 36 H2C5.q1.m2-13 2-A2 (C2V) 4.62 eV	 37 H2C5.q1.m4-18 4-A" (CS) 4.63 eV	 38 H2C5.q1.m4-31 4-A" (CS) 4.72 eV	 39 H2C5.q1.m4-22 4-A" (CS) 5.29 eV	 40 H2C5.q1.m4-5 4-A (C1) 5.39 eV
 41 H2C5.q1.m2-9 2-A" (CS) 5.71 eV	 42 H2C5.q1.m4-24 4-A' (CS) 5.81 eV	 43 H2C5.q1.m4-13 4-A2 (C2V) 5.94 eV	 44 H2C5.q1.m4-9 4-A (C1) 6.17 eV	 45 H2C5.q1.m4-23 4-A (C1) 6.27 eV
 46 H2C5.q1.m4-7 4-A" (CS) 6.72 eV				

C_7^+

1
C7.q1.m2-16
2-A' (CS)
0.00 eV

2
C7.q1.m2-8
2-A (C1)
0.00 eV

3
C7.q1.m4-9
4-B2 (C2V)
0.75 eV

4
C7.q1.m4-4
?? (D*H)
1.66 eV

5
C7.q1.m4-7
4-B2 (C2V)
2.09 eV

6
C7.q1.m2-12
2-A" (CS)
2.31 eV

7
C7.q1.m4-5
4-A (C1)
2.51 eV

8
C7.q1.m2-11
2-A" (CS)
2.61 eV

9
C7.q1.m2-7
2-A (C2)
3.11 eV

10
C7.q1.m2-15
2-A (C1)
3.53 eV

11
C7.q1.m4-11
4-A2 (C1)
3.59 eV

12
C7.q1.m2-2
2-B2 (C2V)
4.26 eV

13
C7.q1.m4-15
4-A (C1)
4.27 eV

14
C7.q1.m2-13
2-A (C1)
4.64 eV

15
C7.q1.m4-2
4-A" (CS)
5.08 eV

$H_6C_2^+$

1
H6C2.q1.m2-5
2-AG (C2H)
0.00 eV

$H_5C_3^+$

1
H5C3.q1.m1-7
1-A' (CS)
0.00 eV

2
H5C3.q1.m1-8
1-A (C1)
0.47 eV

3
H5C3.q1.m3-6
3-B (C2)
2.47 eV

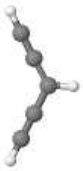
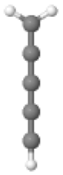
4
H5C3.q1.m3-2
3-A" (CS)
2.54 eV

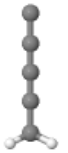
5
H5C3.q1.m3-8
3-A (C1)
2.65 eV

6
H5C3.q1.m3-9
3-A" (CS)
2.82 eV

$H_4C_4^+$				
 1 H4C4.q1.m2-4 2-A (C1) 0.00 eV	 2 H4C4.q1.m2-13 2-B2G (D2H) 0.32 eV	 3 H4C4.q1.m2-19 2-B2 (D2) 0.41 eV	 4 H4C4.q1.m2-6 2-A" (CS) 0.47 eV	 5 H4C4.q1.m2-14 2-A (C1) 1.03 eV
 6 H4C4.q1.m2-3 2-A (C1) 1.04 eV	 7 H4C4.q1.m2-2 2-A" (CS) 1.26 eV	 8 H4C4.q1.m2-18 2-A (C1) 1.54 eV	 9 H4C4.q1.m2-15 2-A' (CS) 1.54 eV	 10 H4C4.q1.m2-7 2-A (C1) 2.27 eV
 11 H4C4.q1.m2-12 2-A" (CS) 2.59 eV	 12 H4C4.q1.m2-17 2-B1U (D2H) 2.93 eV	 13 H4C4.q1.m2-1 2-A (C1) 3.01 eV	 14 H4C4.q1.m2-11 2-A (C1) 3.25 eV	 15 H4C4.q1.m2-5 2-A" (CS) 3.26 eV
 16 H4C4.q1.m4-7 4-AU (C2H) 3.39 eV	 17 H4C4.q1.m4-4 4-A (C1) 3.44 eV	 18 H4C4.q1.m4-19 4-B3 (D2) 3.49 eV	 19 H4C4.q1.m4-6 4-A (C1) 3.81 eV	 20 H4C4.q1.m4-13 4-A (C1) 3.82 eV
 21 H4C4.q1.m4-15 4-B2 (C2V) 3.93 eV	 22 H4C4.q1.m4-12 4-A (C1) 3.95 eV	 23 H4C4.q1.m4-2 4-A (C1) 4.06 eV	 24 H4C4.q1.m4-14 4-A' (CS) 4.10 eV	 25 H4C4.q1.m4-16 4-A2 (C2V) 4.40 eV
 26 H4C4.q1.m2-10 2-A (C1) 4.67 eV	 27 H4C4.q1.m4-17 4-A' (CS) 4.69 eV	 28 H4C4.q1.m4-1 4-A (C1) 4.77 eV	 29 H4C4.q1.m4-8 4-A (C1) 5.09 eV	 30 H4C4.q1.m4-5 4-A" (CS) 5.43 eV

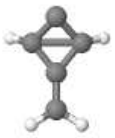
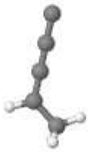
$H_4C_4^+$ (*Continued from previous page*)			
			
31 H4C4.q1.m4-3 4-A (C1) 5.50 eV	32 H4C4.q1.m4-9 4-A (C1) 5.51 eV	33 H4C4.q1.m4-11 4-A (C1) 5.77 eV	34 H4C4.q1.m4-10 4-A (C1) 6.48 eV

$H_3C_5^+$				
 1 H3C5.q1.m1-7 1-A1 (C2V) 0.00 eV	 2 H3C5.q1.m1-2 1-A1 (C2V) 0.71 eV	 3 H3C5.q1.m1-27 1-A' (CS) 0.86 eV	 4 H3C5.q1.m1-37 1-A' (CS) 1.39 eV	 5 H3C5.q1.m3-2 3-A2 (C2V) 2.11 eV
 6 H3C5.q1.m1-6 1-A' (CS) 2.12 eV	 7 H3C5.q1.m1-10 1-A' (CS) 2.17 eV	 8 H3C5.q1.m1-50 1-A' (CS) 2.20 eV	 9 H3C5.q1.m1-3 1-A' (CS) 2.47 eV	 10 H3C5.q1.m1-51 1-A' (CS) 2.80 eV
 11 H3C5.q1.m1-49 1-A (C2) 2.84 eV	 12 H3C5.q1.m1-8 1-A (C1) 2.87 eV	 13 H3C5.q1.m1-31 1-A' (CS) 2.97 eV	 14 H3C5.q1.m1-48 1-A' (CS) 3.02 eV	 15 H3C5.q1.m1-36 1-A (C1) 3.05 eV
 16 H3C5.q1.m3-27 3-A2 (C2V) 3.07 eV	 17 H3C5.q1.m1-32 1-A' (CS) 3.08 eV	 18 H3C5.q1.m3-10 3-A" (CS) 3.08 eV	 19 H3C5.q1.m3-50 3-A (C1) 3.19 eV	 20 H3C5.q1.m3-7 3-A (C1) 3.26 eV
 21 H3C5.q1.m3-49 3-B2 (C2V) 3.30 eV	 22 H3C5.q1.m1-47 1-A' (CS) 3.47 eV	 23 H3C5.q1.m3-5 3-A' (CS) 3.51 eV	 24 H3C5.q1.m1-22 1-A' (CS) 3.69 eV	 25 H3C5.q1.m3-6 3-A' (CS) 3.76 eV
 26 H3C5.q1.m3-1 3-A1 (C3V) 3.78 eV	 27 H3C5.q1.m3-36 3-A (C1) 3.79 eV	 28 H3C5.q1.m3-13 3-A (C1) 3.79 eV	 29 H3C5.q1.m3-9 3-A' (CS) 3.79 eV	 30 H3C5.q1.m1-52 1-A (C1) 3.79 eV

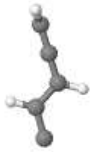
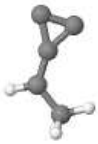
$H_3C_5^+$ (*Continued from previous page*)				
 31 H3C5.q1.m1-34 1-A (C1) 3.86 eV	 32 H3C5.q1.m3-37 3-A" (CS) 3.89 eV	 33 H3C5.q1.m3-39 3-A (C1) 4.02 eV	 34 H3C5.q1.m3-40 3-A (C1) 4.14 eV	 35 H3C5.q1.m3-33 3-A (C1) 4.17 eV
 36 H3C5.q1.m1-35 1-A' (CS) 4.17 eV	 37 H3C5.q1.m1-1 1-A (C1) 4.20 eV	 38 H3C5.q1.m1-43 1-A (C1) 4.22 eV	 39 H3C5.q1.m3-32 3-A" (CS) 4.39 eV	 40 H3C5.q1.m3-38 3-A" (CS) 4.42 eV
 41 H3C5.q1.m3-48 3-A" (CS) 4.48 eV	 42 H3C5.q1.m3-3 3-A" (CS) 4.55 eV	 43 H3C5.q1.m1-39 1-A (C1) 4.55 eV	 44 H3C5.q1.m3-34 3-A (C1) 4.59 eV	 45 H3C5.q1.m3-51 3-A (C1) 4.67 eV
 46 H3C5.q1.m3-47 3-A" (CS) 4.70 eV	 47 H3C5.q1.m1-4 1-A' (CS) 4.73 eV	 48 H3C5.q1.m3-8 3-A (C1) 4.76 eV	 49 H3C5.q1.m1-23 1-A1 (C2V) 4.93 eV	 50 H3C5.q1.m3-4 3-A' (CS) 4.95 eV
 51 H3C5.q1.m1-24 1-A (C1) 5.13 eV	 52 H3C5.q1.m1-46 1-A (C1) 5.22 eV	 53 H3C5.q1.m3-24 3-A" (CS) 5.22 eV	 54 H3C5.q1.m1-15 1-A (C1) 5.27 eV	 55 H3C5.q1.m3-28 3-A" (CS) 5.34 eV
 56 H3C5.q1.m1-9 1-A (C1) 5.38 eV	 57 H3C5.q1.m3-53 3-A (C1) 5.41 eV	 58 H3C5.q1.m3-35 3-A" (CS) 5.43 eV	 59 H3C5.q1.m1-12 1-A' (CS) 5.46 eV	 60 H3C5.q1.m3-46 3-A (C1) 5.54 eV

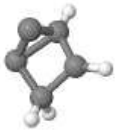
$H_3C_5^+$ (*Continued from previous page*)				
				
61 H3C5.q1.m3-12 3-A" (CS) 5.99 eV	62 H3C5.q1.m3-44 3-A (C1) 6.02 eV	63 H3C5.q1.m3-14 3-A (C1) 6.06 eV	64 H3C5.q1.m3-41 3-A (C1) 6.35 eV	65 H3C5.q1.m3-16 3-A (C1) 6.37 eV
				
66 H3C5.q1.m3-42 3-A (C1) 6.85 eV	67 H3C5.q1.m3-18 3-A (C1) 6.92 eV	68 H3C5.q1.m3-23 3-A" (CS) 7.68 eV	69 H3C5.q1.m3-26 3-A (C1) 8.97 eV	

$H_6C_3^+$				
				
1 H6C3.q1.m2-4 2-A (C1) 0.00 eV	2 H6C3.q1.m2-3 2-A' (CS) 0.42 eV	3 H6C3.q1.m4-2 4-A (C1) 5.04 eV	4 H6C3.q1.m4-3 4-A2 (C2V) 5.07 eV	5 H6C3.q1.m4-1 4-A (C1) 5.11 eV

$H_4C_5^+$				
 1 H4C5.q1.m2-17 2-B (C2) 0.00 eV	 2 H4C5.q1.m2-28 2-A (C1) 0.17 eV	 3 H4C5.q1.m2-10 2-A' (CS) 0.19 eV	 4 H4C5.q1.m2-1 2-A (C1) 0.19 eV	 5 H4C5.q1.m4-60 4-B1 (C2V) 0.30 eV
 6 H4C5.q1.m2-4 2-A' (CS) 0.45 eV	 7 H4C5.q1.m2-60 2-A (C1) 0.50 eV	 8 H4C5.q1.m2-5 2-A" (CS) 0.65 eV	 9 H4C5.q1.m2-46 2-A (C1) 0.77 eV	 10 H4C5.q1.m2-53 2-A (C1) 0.87 eV
 11 H4C5.q1.m2-11 2-A (C1) 1.07 eV	 12 H4C5.q1.m2-47 2-A (C1) 1.09 eV	 13 H4C5.q1.m2-41 2-A' (CS) 1.20 eV	 14 H4C5.q1.m2-67 2-A' (CS) 1.20 eV	 15 H4C5.q1.m2-30 2-B1 (C2V) 1.22 eV
 16 H4C5.q1.m2-63 2-A (C1) 1.38 eV	 17 H4C5.q1.m2-65 2-A (C1) 1.51 eV	 18 H4C5.q1.m2-44 2-A" (CS) 1.55 eV	 19 H4C5.q1.m2-66 2-A' (CS) 1.61 eV	 20 H4C5.q1.m2-62 2-A (C1) 1.61 eV
 21 H4C5.q1.m4-65 4-A' (CS) 1.97 eV	 22 H4C5.q1.m2-3 2-A' (CS) 2.05 eV	 23 H4C5.q1.m2-25 2-A (C1) 2.07 eV	 24 H4C5.q1.m2-22 2-A (C1) 2.08 eV	 25 H4C5.q1.m4-63 4-A" (CS) 2.08 eV
 26 H4C5.q1.m4-62 4-A" (CS) 2.14 eV	 27 H4C5.q1.m2-2 2-A" (CS) 2.16 eV	 28 H4C5.q1.m4-53 4-A (C1) 2.16 eV	 29 H4C5.q1.m4-28 4-A' (CS) 2.26 eV	 30 H4C5.q1.m2-37 2-A (C1) 2.26 eV

$H_4C_5^+$ (*Continued from previous page*)				
 31 H4C5.q1.m4-59 4-B (C2) 2.28 eV	 32 H4C5.q1.m4-41 4-B2 (C2V) 2.31 eV	 33 H4C5.q1.m2-6 2-A (C1) 2.33 eV	 34 H4C5.q1.m2-68 2-A (C1) 2.34 eV	 35 H4C5.q1.m2-64 2-A' (CS) 2.37 eV
 36 H4C5.q1.m4-46 4-A' (CS) 2.40 eV	 37 H4C5.q1.m2-40 2-A (C1) 2.50 eV	 38 H4C5.q1.m4-17 4-A" (CS) 2.52 eV	 39 H4C5.q1.m2-71 2-A (C1) 2.52 eV	 40 H4C5.q1.m4-32 4-B2 (C2V) 2.54 eV
 41 H4C5.q1.m4-5 4-A' (CS) 2.57 eV	 42 H4C5.q1.m2-45 2-A' (CS) 2.59 eV	 43 H4C5.q1.m2-38 2-A (C1) 2.62 eV	 44 H4C5.q1.m2-42 2-A (C1) 2.67 eV	 45 H4C5.q1.m2-14 2-B1 (C2V) 2.73 eV
 46 H4C5.q1.m2-23 2-A (C1) 2.79 eV	 47 H4C5.q1.m4-11 4-A' (CS) 2.93 eV	 48 H4C5.q1.m2-8 2-A' (CS) 3.00 eV	 49 H4C5.q1.m4-1 4-A (C1) 3.02 eV	 50 H4C5.q1.m2-24 2-A (C1) 3.05 eV
 51 H4C5.q1.m4-52 4-A (C1) 3.11 eV	 52 H4C5.q1.m4-4 4-A" (CS) 3.12 eV	 53 H4C5.q1.m4-54 4-A (C1) 3.14 eV	 54 H4C5.q1.m4-10 4-A (C1) 3.14 eV	 55 H4C5.q1.m2-61 2-B2 (C2V) 3.19 eV
 56 H4C5.q1.m2-29 2-A (C1) 3.27 eV	 57 H4C5.q1.m4-50 4-A (C1) 3.31 eV	 58 H4C5.q1.m4-25 4-A (C1) 3.33 eV	 59 H4C5.q1.m4-22 4-A" (CS) 3.38 eV	 60 H4C5.q1.m4-42 4-A" (CS) 3.46 eV

$H_4C_5^+$ (*Continued from previous page*)				
 61 H4C5.q1.m4-37 4-A" (CS) 3.51 eV	 62 H4C5.q1.m4-6 4-A" (CS) 3.59 eV	 63 H4C5.q1.m2-15 2-A' (CS) 3.60 eV	 64 H4C5.q1.m4-2 4-A" (CS) 3.61 eV	 65 H4C5.q1.m4-47 4-A" (CS) 3.62 eV
 66 H4C5.q1.m4-27 4-A" (CS) 3.65 eV	 67 H4C5.q1.m2-55 2-A (C1) 3.65 eV	 68 H4C5.q1.m4-38 4-A" (CS) 3.67 eV	 69 H4C5.q1.m4-40 4-A (C1) 3.68 eV	 70 H4C5.q1.m4-55 4-A (C1) 3.68 eV
 71 H4C5.q1.m4-18 4-A (C1) 3.74 eV	 72 H4C5.q1.m2-70 2-A1 (C2V) 3.77 eV	 73 H4C5.q1.m2-49 2-A' (CS) 3.80 eV	 74 H4C5.q1.m4-3 4-A' (CS) 3.81 eV	 75 H4C5.q1.m4-14 4-B2 (C2V) 3.83 eV
 76 H4C5.q1.m2-7 2-A (C1) 3.89 eV	 77 H4C5.q1.m4-9 4-A" (CS) 3.94 eV	 78 H4C5.q1.m4-23 4-A" (CS) 3.98 eV	 79 H4C5.q1.m4-39 4-A (C1) 3.98 eV	 80 H4C5.q1.m4-7 4-A (C1) 3.99 eV
 81 H4C5.q1.m4-61 4-B1 (C2V) 4.08 eV	 82 H4C5.q1.m4-56 4-A" (CS) 4.11 eV	 83 H4C5.q1.m4-44 4-A' (CS) 4.22 eV	 84 H4C5.q1.m4-43 4-A (C1) 4.36 eV	 85 H4C5.q1.m4-13 4-A (C1) 4.38 eV
 86 H4C5.q1.m4-15 4-A" (CS) 4.50 eV	 87 H4C5.q1.m4-24 4-A (C1) 4.53 eV	 88 H4C5.q1.m4-8 4-A (C1) 4.59 eV	 89 H4C5.q1.m4-26 4-A (C1) 4.61 eV	 90 H4C5.q1.m4-29 4-A (C1) 4.65 eV

$H_4C_5^+$ (*Continued from previous page*)				
 91 H4C5.q1.m4-30 4-A (C1) 4.71 eV	 92 H4C5.q1.m4-71 4-A (C1) 4.89 eV	 93 H4C5.q1.m2-31 2-A" (CS) 4.91 eV	 94 H4C5.q1.m4-19 4-A (C1) 4.97 eV	 95 H4C5.q1.m4-33 4-A (C1) 5.01 eV
 96 H4C5.q1.m4-64 4-A" (CS) 5.17 eV	 97 H4C5.q1.m4-16 4-A (C1) 5.37 eV	 98 H4C5.q1.m2-34 2-A (C1) 5.42 eV	 99 H4C5.q1.m4-51 4-A" (CS) 5.53 eV	 100 H4C5.q1.m4-45 4-A" (CS) 5.59 eV
 101 H4C5.q1.m4-57 4-A (C1) 6.08 eV	 102 H4C5.q1.m4-58 4-A (C1) 6.27 eV	 103 H4C5.q1.m4-34 4-A (C1) 6.74 eV	 104 H4C5.q1.m4-20 4-A (C1) 6.86 eV	 105 H4C5.q1.m4-21 4-A (C1) 7.31 eV

C^{2+}	
 1 C.q2.m1-1 1-S (R3) 0.00 eV	 2 C.q2.m3-1 3-P (R3) 6.50 eV

C_2^{2+}			
 1 C2.q2.m3-2 3-SGG (D*H) 0.00 eV	 2 C2.q2.m1-3 1-SGG (D*H) 0.41 eV	 3 C2.q2.m3-3 3-PIU (D*H) 0.65 eV	 4 C2.q2.m1-2 1-DLTG (D*H) 0.92 eV

H_2C^{2+}

1 H2C.q2.m1-1 1-SGG (D*H) 0.00 eV

HC_2^{2+}	
	
1 HC2.q2.m4-1 4-SG (C*V) 0.00 eV	2 HC2.q2.m2-1 2-PI (C*V) 1.99 eV

C_3^{2+}		
		
1 C3.q2.m1-1 1-SG (C*V) 0.00 eV	2 C3.q2.m1-5 1-A1' (D3H) 0.39 eV	3 C3.q2.m3-2 3-SGU (D*H) 1.03 eV

H_3C^{2+}	
	
1 H3C.q2.m2-1 2-A1 (C2V) 0.00 eV	2 H3C.q2.m4-1 4-A1 (C3V) 3.34 eV

$H_2C_2^{2+}$			
			
1 H2C2.q2.m3-1 3-SGG (D*H) 0.00 eV	2 H2C2.q2.m1-1 1-PIU (D*H) 0.98 eV	3 H2C2.q2.m3-3 3-B2 (C2V) 1.81 eV	4 H2C2.q2.m1-3 1-A' (CS) 1.99 eV

HC_3^{2+}

1
HC3.q2.m2-1
2-SG (C*V)
0.00 eV

2
HC3.q2.m4-1
4-SG (C*V)
2.39 eV

3
HC3.q2.m4-3
4-B2 (C2V)
3.27 eV

C_4^{2+}

1
C4.q2.m1-7
1-A1G (D4H)
0.00 eV

2
C4.q2.m1-8
1-SGG (D*H)
1.58 eV

3
C4.q2.m3-2
3-PI (C*V)
1.61 eV

4
C4.q2.m1-1
1-A' (CS)
2.39 eV

5
C4.q2.m1-9
1-A1' (D3H)
2.39 eV

6
C4.q2.m3-9
3-B1U (D2H)
2.50 eV

7
C4.q2.m3-7
3-B2 (C2V)
2.59 eV

8
C4.q2.m1-6
1-A1 (TD)
7.94 eV

H_4C^{2+}

1
H4C.q2.m1-2
1-A (C1)
0.00 eV

2
H4C.q2.m3-1
3-A1 (D2D)
2.72 eV

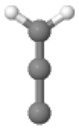
$H_3C_2^{2+}$

1
H3C2.q2.m2-1
2-A" (CS)
0.00 eV

2
H3C2.q2.m2-2
2-A' (CS)
2.33 eV

3
H3C2.q2.m4-1
4-A" (CS)
4.20 eV

4
H3C2.q2.m4-2
4-A" (CS)
4.96 eV

$H_2C_3^{2+}$				
				
1 H2C3.q2.m1-1 1-SGG (D*H) 0.00 eV	2 H2C3.q2.m3-1 3-SGU (D*H) 2.82 eV	3 H2C3.q2.m1-3 1-A' (CS) 2.84 eV	4 H2C3.q2.m3-5 3-B1 (C2V) 3.27 eV	5 H2C3.q2.m3-2 3-A (C1) 3.31 eV
				
6 H2C3.q2.m1-2 1-A (C1) 3.74 eV	7 H2C3.q2.m3-4 3-B (C2) 5.24 eV	8 H2C3.q2.m1-4 1-A1 (C2V) 5.38 eV		

HC_4^{2+}				
				
1 HC4.q2.m4-1 4-SG (C*V) 0.00 eV	2 HC4.q2.m2-1 2-PI (C*V) 0.38 eV	3 HC4.q2.m2-6 2-A1 (C2V) 0.57 eV	4 HC4.q2.m2-3 2-A (C1) 1.24 eV	5 HC4.q2.m4-4 4-A2 (C2V) 1.48 eV
				
6 HC4.q2.m2-4 2-A' (CS) 1.81 eV	7 HC4.q2.m4-5 4-A" (CS) 2.34 eV	8 HC4.q2.m2-2 2-A' (CS) 2.88 eV	9 HC4.q2.m4-2 4-A" (CS) 2.96 eV	

C_5^{2+}				
				
1 C5.q2.m3-2 3-SGU (D*H) 0.00 eV	2 C5.q2.m1-6 1-A' (CS) 1.31 eV	3 C5.q2.m1-5 1-A1 (C2V) 1.53 eV	4 C5.q2.m3-9 3-A2 (C2V) 2.56 eV	5 C5.q2.m3-7 3-A (C1) 2.56 eV
				
6 C5.q2.m1-7 1-A (C1) 2.88 eV	7 C5.q2.m3-8 3-B1 (C2V) 2.90 eV	8 C5.q2.m1-8 1-A1 (C2V) 3.14 eV	9 C5.q2.m3-6 3-A" (CS) 3.23 eV	10 C5.q2.m3-5 3-A" (CS) 4.18 eV

$H_4C_2^{2+}$

1
H4C2.q2.m3-1
3-AU (D2H)
0.00 eV

2
H4C2.q2.m3-2
3-A (C1)
0.85 eV

$H_3C_3^{2+}$

1
H3C3.q2.m2-1
2-B2 (C2V)
0.00 eV

2
H3C3.q2.m2-3
2-A' (CS)
2.41 eV

3
H3C3.q2.m4-3
4-A (C1)
3.96 eV

4
H3C3.q2.m4-2
4-A" (CS)
3.97 eV

$H_2C_4^{2+}$

1
H2C4.q2.m3-1
3-SGG (D*H)
0.00 eV

2
H2C4.q2.m1-9
1-A1 (C2V)
0.45 eV

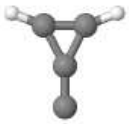
3
H2C4.q2.m1-1
1-PIG (D*H)
0.47 eV

4
H2C4.q2.m1-6
1-A1 (C2V)
1.50 eV

5
H2C4.q2.m1-4
1-A1 (C2V)
1.78 eV

6
H2C4.q2.m3-4
3-B2 (C2V)
2.04 eV

7
H2C4.q2.m3-9
3-A" (CS)
2.23 eV



8
H2C4.q2.m3-6
3-B2 (C2V)
2.30 eV

9
H2C4.q2.m3-8
3-A' (CS)
2.65 eV

10
H2C4.q2.m3-7
3-A" (CS)
2.90 eV

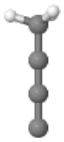
11
H2C4.q2.m3-5
3-A (C1)
5.54 eV

12
H2C4.q2.m1-5
1-A' (CS)
6.34 eV

HC_5^{2+}				
 1 HC5.q2.m2-1 2-SG (C*V) 0.00 eV	 2 HC5.q2.m4-1 4-SG (C*V) 1.86 eV	 3 HC5.q2.m4-2 4-A2 (C2V) 2.08 eV	 4 HC5.q2.m2-12 2-B1 (C2V) 2.30 eV	 5 HC5.q2.m2-8 2-A' (CS) 2.39 eV
 6 HC5.q2.m4-3 4-A" (CS) 2.45 eV	 7 HC5.q2.m2-13 2-A (C2) 3.00 eV	 8 HC5.q2.m4-12 4-A2 (C2V) 3.12 eV	 9 HC5.q2.m4-8 4-A (C1) 3.20 eV	 10 HC5.q2.m4-11 4-A" (CS) 3.25 eV
 11 HC5.q2.m2-4 2-A" (CS) 3.53 eV	 12 HC5.q2.m2-2 2-B2 (C2V) 3.98 eV	 13 HC5.q2.m4-6 4-A" (CS) 4.08 eV	 14 HC5.q2.m4-4 4-B2 (C2V) 4.30 eV	 15 HC5.q2.m2-3 2-A' (CS) 4.38 eV
 16 HC5.q2.m4-9 4-A (C1) 4.42 eV	 17 HC5.q2.m4-10 4-A" (CS) 5.73 eV	 18 HC5.q2.m2-6 2-A (C1) 6.03 eV		

C_6^{2+}				
 1 C6.q2.m1-10 1-SGG (D*H) 0.00 eV	 2 C6.q2.m3-10 3-PIU (D*H) 1.15 eV	 3 C6.q2.m1-9 1-AG (D2H) 1.29 eV	 4 C6.q2.m3-12 3-A1' (D3H) 1.93 eV	 5 C6.q2.m3-3 3-B1G (D2H) 2.31 eV
 6 C6.q2.m3-9 3-B1 (C2V) 2.67 eV	 7 C6.q2.m1-11 1-AG (D2H) 2.94 eV	 8 C6.q2.m1-3 1-AG (D2H) 3.00 eV	 9 C6.q2.m1-2 1-A (C1) 3.58 eV	 10 C6.q2.m3-2 3-A (C1) 3.67 eV
 11 C6.q2.m1-5 1-A (C1) 4.41 eV	 12 C6.q2.m3-4 3-A (C1) 4.75 eV	 13 C6.q2.m1-14 1-A (C1) 4.86 eV	 14 C6.q2.m1-4 1-A1 (C2V) 4.94 eV	 15 C6.q2.m3-15 3-A (C1) 5.15 eV
 16 C6.q2.m3-1 3-AU (D2H) 5.49 eV				

$H_4C_3^{2+}$				
 1 H4C3.q2.m1-2 1-AG (D2H) 0.00 eV	 2 H4C3.q2.m3-2 3-A1 (D2D) 1.73 eV	 3 H4C3.q2.m1-1 1-A (C1) 2.29 eV	 4 H4C3.q2.m3-1 3-A1 (C3V) 2.42 eV	 5 H4C3.q2.m3-6 3-A" (CS) 2.91 eV
 6 H4C3.q2.m3-4 3-A" (CS) 2.93 eV	 7 H4C3.q2.m1-5 1-A (C1) 3.31 eV	 8 H4C3.q2.m1-3 1-A' (CS) 4.26 eV	 9 H4C3.q2.m3-3 3-A (C1) 5.03 eV	 10 H4C3.q2.m3-5 3-A" (CS) 5.07 eV

$H_3C_4^{2+}$				
 1 H3C4.q2.m2-2 2-B1 (C2V) 0.00 eV	 2 H3C4.q2.m2-5 2-A" (CS) 0.38 eV	 3 H3C4.q2.m2-12 2-A' (CS) 0.62 eV	 4 H3C4.q2.m2-7 2-A (C1) 1.04 eV	 5 H3C4.q2.m2-13 2-A' (CS) 1.78 eV
 6 H3C4.q2.m4-5 4-A" (CS) 2.67 eV	 7 H3C4.q2.m2-11 2-A (C1) 2.82 eV	 8 H3C4.q2.m2-1 2-A1 (C3V) 2.84 eV	 9 H3C4.q2.m4-2 4-A" (CS) 2.86 eV	 10 H3C4.q2.m2-6 2-A (C1) 3.25 eV
 11 H3C4.q2.m2-3 2-A' (CS) 3.25 eV	 12 H3C4.q2.m4-3 4-A" (CS) 3.52 eV	 13 H3C4.q2.m2-8 2-A' (CS) 3.56 eV	 14 H3C4.q2.m2-4 2-A (C1) 3.74 eV	 15 H3C4.q2.m4-7 4-A (C1) 3.93 eV
 16 H3C4.q2.m4-6 4-A" (CS) 4.31 eV	 17 H3C4.q2.m4-12 4-A (C1) 4.77 eV	 18 H3C4.q2.m4-15 4-A1 (C3V) 4.81 eV	 19 H3C4.q2.m4-14 4-A (C1) 4.91 eV	 20 H3C4.q2.m4-13 4-A" (CS) 4.93 eV
 21 H3C4.q2.m4-8 4-A" (CS) 4.95 eV	 22 H3C4.q2.m4-9 4-A" (CS) 5.24 eV	 23 H3C4.q2.m4-10 4-A" (CS) 5.28 eV	 24 H3C4.q2.m4-1 4-A' (CS) 5.33 eV	

$H_2C_5^{2+}$				
 1 H2C5.q2.m1-1 1-SGG (D*H) 0.00 eV	 2 H2C5.q2.m1-29 1-A1 (C2V) 2.68 eV	 3 H2C5.q2.m1-6 1-A (C1) 2.78 eV	 4 H2C5.q2.m1-20 1-A' (CS) 2.78 eV	 5 H2C5.q2.m3-6 3-A" (CS) 2.85 eV
 6 H2C5.q2.m3-4 3-B1 (C2V) 3.02 eV	 7 H2C5.q2.m1-2 1-A (C1) 3.03 eV	 8 H2C5.q2.m1-4 1-A (C1) 3.15 eV	 9 H2C5.q2.m3-2 3-B (C2) 3.19 eV	 10 H2C5.q2.m3-20 3-A" (CS) 3.75 eV
 11 H2C5.q2.m1-28 1-A1 (C2V) 3.82 eV	 12 H2C5.q2.m3-29 3-B2 (C2V) 3.87 eV	 13 H2C5.q2.m1-15 1-A1 (C2V) 4.10 eV	 14 H2C5.q2.m3-10 3-A (C1) 4.15 eV	 15 H2C5.q2.m1-14 1-A' (CS) 4.21 eV
 16 H2C5.q2.m3-17 3-B1 (C2V) 4.41 eV	 17 H2C5.q2.m3-14 3-A' (CS) 4.44 eV	 18 H2C5.q2.m3-28 3-B (C2) 4.54 eV	 19 H2C5.q2.m3-19 3-A (C1) 4.94 eV	 20 H2C5.q2.m3-25 3-A (C1) 5.00 eV
 21 H2C5.q2.m1-24 1-A' (CS) 5.02 eV	 22 H2C5.q2.m1-17 1-A' (CS) 5.02 eV	 23 H2C5.q2.m1-21 1-A1 (C2V) 5.07 eV	 24 H2C5.q2.m3-26 3-B2 (C2V) 5.20 eV	 25 H2C5.q2.m1-27 1-A' (CS) 5.28 eV
 26 H2C5.q2.m3-27 3-A" (CS) 5.35 eV	 27 H2C5.q2.m1-3 1-A' (CS) 5.53 eV	 28 H2C5.q2.m1-16 1-A (C1) 5.56 eV	 29 H2C5.q2.m3-16 3-A (C1) 5.80 eV	 30 H2C5.q2.m3-18 3-A (C1) 6.28 eV

$H_2C_5^{2+}$ (*Continued from previous page*)

31
H2C5.q2.m3-24
3-A" (CS)
6.31 eV

32
H2C5.q2.m3-9
3-A (C1)
6.52 eV

33
H2C5.q2.m3-30
3-B2 (C2V)
6.68 eV

34
H2C5.q2.m1-13
1-A1 (C2V)
7.31 eV

35
H2C5.q2.m3-23
3-A (C1)
7.39 eV

36
H2C5.q2.m3-13
3-A' (CS)
8.64 eV

C_7^{2+}

1
C7.q2.m1-12
1-A1' (D7H)
0.00 eV

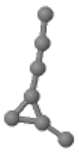
2
C7.q2.m3-12
3-A' (CS)
2.83 eV

3
C7.q2.m3-14
3-B (C2)
2.96 eV

4
C7.q2.m1-15
1-A1 (C2V)
3.68 eV

5
C7.q2.m1-5
1-A (C1)
4.14 eV

6
C7.q2.m3-15
3-A (C1)
4.97 eV



7
C7.q2.m1-1
1-A' (CS)
4.99 eV

8
C7.q2.m3-4
3-B1 (C2V)
5.17 eV

9
C7.q2.m1-4
1-A' (CS)
5.82 eV

10
C7.q2.m1-6
1-A1 (C3V)
5.87 eV

11
C7.q2.m1-7
1-A1 (C2V)
6.17 eV

12
C7.q2.m1-13
1-A1 (C2V)
6.41 eV

13
C7.q2.m3-16
3-A (C1)
7.57 eV

14
C7.q2.m1-16
1-A (C1)
7.57 eV

15
C7.q2.m3-17
3-A (C1)
7.62 eV

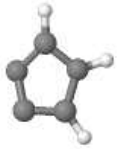
16
C7.q2.m1-3
1-A (C1)
7.88 eV

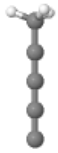
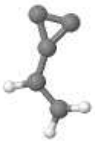
17
C7.q2.m3-3
3-A" (CS)
7.93 eV

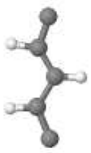
18
C7.q2.m1-11
1-A' (CS)
8.00 eV

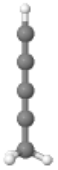
19
C7.q2.m1-10
1-A' (CS)
9.03 eV

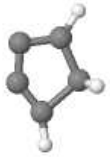
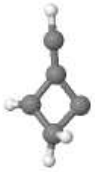
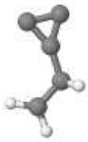
$H_4C_4^{2+}$				
 1 H4C4.q2.m1-18 1-A1 (D2D) 0.00 eV	 2 H4C4.q2.m1-4 1-A' (CS) 0.43 eV	 3 H4C4.q2.m1-19 1-A1 (D2D) 0.65 eV	 4 H4C4.q2.m1-2 1-A1 (C3V) 1.36 eV	 5 H4C4.q2.m1-6 1-A' (CS) 1.96 eV
 6 H4C4.q2.m1-7 1-AG (C2H) 2.04 eV	 7 H4C4.q2.m3-19 3-AU (D2H) 2.27 eV	 8 H4C4.q2.m3-6 3-A (C1) 2.62 eV	 9 H4C4.q2.m3-4 3-A" (CS) 3.41 eV	 10 H4C4.q2.m1-11 1-A1 (C2V) 3.72 eV
 11 H4C4.q2.m1-17 1-A1 (C2V) 3.84 eV	 12 H4C4.q2.m3-13 3-A (C1) 3.89 eV	 13 H4C4.q2.m1-3 1-A (C1) 4.12 eV	 14 H4C4.q2.m3-14 3-A (C1) 4.22 eV	 15 H4C4.q2.m3-18 3-A1 (TD) 4.30 eV
 16 H4C4.q2.m3-2 3-A (C1) 4.38 eV	 17 H4C4.q2.m3-15 3-B1 (C2V) 4.43 eV	 18 H4C4.q2.m1-10 1-A (C1) 4.43 eV	 19 H4C4.q2.m1-5 1-A' (CS) 4.47 eV	 20 H4C4.q2.m3-12 3-A (C1) 4.79 eV
 21 H4C4.q2.m3-3 3-A (C1) 4.88 eV	 22 H4C4.q2.m3-11 3-B2 (C2V) 5.06 eV	 23 H4C4.q2.m3-1 3-A (C1) 5.41 eV	 24 H4C4.q2.m3-17 3-B1U (D2H) 5.48 eV	 25 H4C4.q2.m3-10 3-A (C1) 6.34 eV
 26 H4C4.q2.m1-16 1-AG (C2H) 6.80 eV				

$H_3C_5^{2+}$				
 1 H3C5.q2.m2-7 2-A' (CS) 0.00 eV	 2 H3C5.q2.m2-2 2-A (C1) 0.19 eV	 3 H3C5.q2.m2-10 2-A' (CS) 1.36 eV	 4 H3C5.q2.m2-27 2-A1 (C2V) 1.39 eV	 5 H3C5.q2.m2-5 2-A (C1) 1.60 eV
 6 H3C5.q2.m2-37 2-A" (CS) 1.63 eV	 7 H3C5.q2.m2-36 2-A (C1) 2.16 eV	 8 H3C5.q2.m2-6 2-A' (CS) 2.28 eV	 9 H3C5.q2.m2-50 2-A (C1) 2.29 eV	 10 H3C5.q2.m4-2 4-B (C2) 2.31 eV
 11 H3C5.q2.m2-40 2-A' (CS) 2.59 eV	 12 H3C5.q2.m2-32 2-A (C1) 2.64 eV	 13 H3C5.q2.m2-48 2-A (C1) 2.70 eV	 14 H3C5.q2.m4-27 4-A2 (C2V) 2.79 eV	 15 H3C5.q2.m2-3 2-A' (CS) 2.85 eV
 16 H3C5.q2.m2-49 2-A (C1) 2.91 eV	 17 H3C5.q2.m4-50 4-A' (CS) 2.92 eV	 18 H3C5.q2.m2-25 2-A (C1) 3.01 eV	 19 H3C5.q2.m2-8 2-A (C1) 3.17 eV	 20 H3C5.q2.m4-7 4-A (C1) 3.20 eV
 21 H3C5.q2.m4-10 4-A" (CS) 3.20 eV	 22 H3C5.q2.m2-22 2-A' (CS) 3.23 eV	 23 H3C5.q2.m2-47 2-A" (CS) 3.29 eV	 24 H3C5.q2.m2-4 2-A' (CS) 3.32 eV	 25 H3C5.q2.m4-36 4-A (C1) 3.37 eV
 26 H3C5.q2.m2-39 2-A (C1) 3.46 eV	 27 H3C5.q2.m4-6 4-A (C1) 3.51 eV	 28 H3C5.q2.m4-32 4-A" (CS) 3.55 eV	 29 H3C5.q2.m4-40 4-A" (CS) 3.55 eV	 30 H3C5.q2.m4-49 4-A (C1) 3.56 eV

$H_3C_5^{2+}$ (*Continued from previous page*)				
 31 H3C5.q2.m2-38 2-A (C1) 3.56 eV	 32 H3C5.q2.m4-1 4-A1 (C3V) 3.59 eV	 33 H3C5.q2.m4-5 4-A (C1) 3.60 eV	 34 H3C5.q2.m2-33 2-A (C1) 3.65 eV	 35 H3C5.q2.m2-1 2-A (C1) 3.72 eV
 36 H3C5.q2.m2-14 2-A (C1) 3.96 eV	 37 H3C5.q2.m4-37 4-A" (CS) 3.97 eV	 38 H3C5.q2.m4-33 4-A (C1) 3.98 eV	 39 H3C5.q2.m4-9 4-A (C1) 4.05 eV	 40 H3C5.q2.m2-34 2-A' (CS) 4.12 eV
 41 H3C5.q2.m4-3 4-A (C1) 4.33 eV	 42 H3C5.q2.m2-28 2-A' (CS) 4.65 eV	 43 H3C5.q2.m2-44 2-A (C1) 4.66 eV	 44 H3C5.q2.m4-48 4-A" (CS) 4.71 eV	 45 H3C5.q2.m4-28 4-A" (CS) 4.87 eV
 46 H3C5.q2.m4-15 4-A (C1) 4.89 eV	 47 H3C5.q2.m4-31 4-A" (CS) 4.91 eV	 48 H3C5.q2.m4-4 4-A" (CS) 5.02 eV	 49 H3C5.q2.m4-39 4-A (C1) 5.03 eV	 50 H3C5.q2.m2-15 2-A" (CS) 5.17 eV
 51 H3C5.q2.m4-8 4-A' (CS) 5.20 eV	 52 H3C5.q2.m4-38 4-A (C1) 5.25 eV	 53 H3C5.q2.m4-11 4-A (C1) 5.36 eV	 54 H3C5.q2.m4-47 4-A" (CS) 5.46 eV	 55 H3C5.q2.m4-14 4-A (C1) 5.52 eV
 56 H3C5.q2.m4-13 4-A (C1) 5.53 eV	 57 H3C5.q2.m2-29 2-A (C1) 5.71 eV	 58 H3C5.q2.m4-19 4-A (C1) 5.73 eV	 59 H3C5.q2.m4-16 4-A" (CS) 5.80 eV	 60 H3C5.q2.m2-20 2-A (C1) 5.85 eV

$H_3C_5^{2+}$ (*Continued from previous page*)				
 61 H3C5.q2.m4-44 4-A (C1) 5.99 eV	 62 H3C5.q2.m4-42 4-A (C1) 6.03 eV	 63 H3C5.q2.m4-34 4-A (C1) 6.31 eV	 64 H3C5.q2.m2-23 2-A' (CS) 6.37 eV	 65 H3C5.q2.m4-18 4-A (C1) 6.73 eV
 66 H3C5.q2.m4-26 4-A (C1) 6.88 eV	 67 H3C5.q2.m4-20 4-A (C1) 7.07 eV	 68 H3C5.q2.m4-23 4-A' (CS) 7.25 eV	 69 H3C5.q2.m2-11 2-A' (CS) 7.32 eV	 70 H3C5.q2.m4-29 4-A" (CS) 7.92 eV
 71 H3C5.q2.m4-12 4-A (C1) 8.12 eV	 72 H3C5.q2.m4-21 4-A (C1) 8.22 eV			

$H_4C_5^{2+}$				
 1 H4C5.q2.m1-17 1-A' (CS) 0.00 eV	 2 H4C5.q2.m1-5 1-A (C1) 0.69 eV	 3 H4C5.q2.m1-28 1-A' (CS) 1.21 eV	 4 H4C5.q2.m3-17 3-A (C1) 1.78 eV	 5 H4C5.q2.m1-60 1-A' (CS) 1.85 eV
 6 H4C5.q2.m3-1 3-A1 (C3V) 1.96 eV	 7 H4C5.q2.m1-67 1-A (C1) 2.02 eV	 8 H4C5.q2.m3-10 3-A" (CS) 2.11 eV	 9 H4C5.q2.m3-60 3-A" (CS) 2.22 eV	 10 H4C5.q2.m3-53 3-A (C1) 2.23 eV
 11 H4C5.q2.m1-63 1-A (C1) 2.23 eV	 12 H4C5.q2.m1-1 1-A (C1) 2.26 eV	 13 H4C5.q2.m1-41 1-A' (CS) 2.31 eV	 14 H4C5.q2.m1-47 1-A' (CS) 2.39 eV	 15 H4C5.q2.m3-28 3-A" (CS) 2.41 eV
 16 H4C5.q2.m1-39 1-A (C1) 2.43 eV	 17 H4C5.q2.m3-46 3-A (C1) 2.50 eV	 18 H4C5.q2.m1-65 1-A (C1) 2.52 eV	 19 H4C5.q2.m1-44 1-A' (CS) 2.56 eV	 20 H4C5.q2.m1-23 1-A' (CS) 2.67 eV
 21 H4C5.q2.m3-41 3-B1 (C2V) 2.76 eV	 22 H4C5.q2.m1-64 1-A1 (C2V) 2.89 eV	 23 H4C5.q2.m3-11 3-A" (CS) 3.07 eV	 24 H4C5.q2.m1-62 1-A (C1) 3.11 eV	 25 H4C5.q2.m1-24 1-A (C1) 3.13 eV
 26 H4C5.q2.m1-61 1-A1 (C2V) 3.20 eV	 27 H4C5.q2.m3-63 3-A" (CS) 3.26 eV	 28 H4C5.q2.m1-6 1-A' (CS) 3.28 eV	 29 H4C5.q2.m1-59 1-A (C1) 3.34 eV	 30 H4C5.q2.m3-65 3-A (C1) 3.37 eV

$H_4C_5^{2+}$ (*Continued from previous page*)				
 31 H4C5.q2.m1-14 1-A' (CS) 3.38 eV	 32 H4C5.q2.m1-30 1-A' (CS) 3.50 eV	 33 H4C5.q2.m3-22 3-A (C1) 3.58 eV	 34 H4C5.q2.m1-16 1-A' (CS) 3.68 eV	 35 H4C5.q2.m1-56 1-A' (CS) 3.69 eV
 36 H4C5.q2.m1-22 1-A (C1) 3.74 eV	 37 H4C5.q2.m1-2 1-A' (CS) 3.83 eV	 38 H4C5.q2.m1-13 1-A (C1) 3.84 eV	 39 H4C5.q2.m1-38 1-A' (CS) 3.85 eV	 40 H4C5.q2.m3-59 3-A" (CS) 3.98 eV
 41 H4C5.q2.m3-7 3-A (C1) 3.98 eV	 42 H4C5.q2.m1-25 1-A (C1) 4.00 eV	 43 H4C5.q2.m3-66 3-B2 (C2V) 4.02 eV	 44 H4C5.q2.m3-62 3-A" (CS) 4.02 eV	 45 H4C5.q2.m1-37 1-A (C1) 4.05 eV
 46 H4C5.q2.m3-14 3-B1 (C2V) 4.07 eV	 47 H4C5.q2.m1-54 1-A (C1) 4.20 eV	 48 H4C5.q2.m3-3 3-A (C1) 4.22 eV	 49 H4C5.q2.m3-23 3-A (C1) 4.24 eV	 50 H4C5.q2.m3-47 3-A (C1) 4.32 eV
 51 H4C5.q2.m3-37 3-A (C1) 4.38 eV	 52 H4C5.q2.m3-15 3-A (C1) 4.41 eV	 53 H4C5.q2.m3-44 3-A" (CS) 4.50 eV	 54 H4C5.q2.m3-39 3-A (C1) 4.61 eV	 55 H4C5.q2.m3-25 3-A" (CS) 4.63 eV
 56 H4C5.q2.m3-2 3-A (C1) 4.64 eV	 57 H4C5.q2.m1-29 1-A (C1) 4.66 eV	 58 H4C5.q2.m3-40 3-A (C1) 4.67 eV	 59 H4C5.q2.m3-6 3-A" (CS) 4.71 eV	 60 H4C5.q2.m3-18 3-A (C1) 4.74 eV

$H_4C_5^{2+}$ (*Continued from previous page*)				
				
61 H4C5.q2.m3-26 3-A (C1) 4.77 eV	62 H4C5.q2.m3-8 3-A (C1) 4.82 eV	63 H4C5.q2.m3-56 3-A" (CS) 5.02 eV	64 H4C5.q2.m1-3 1-A (C1) 5.08 eV	65 H4C5.q2.m3-27 3-A (C1) 5.09 eV
				
66 H4C5.q2.m3-38 3-A" (CS) 5.13 eV	67 H4C5.q2.m3-29 3-A (C1) 5.18 eV	68 H4C5.q2.m3-43 3-A (C1) 5.22 eV	69 H4C5.q2.m3-24 3-A (C1) 5.67 eV	70 H4C5.q2.m1-20 1-A (C1) 6.04 eV
				
71 H4C5.q2.m3-64 3-A2 (C2V) 6.31 eV	72 H4C5.q2.m1-15 1-A (C1) 6.41 eV	73 H4C5.q2.m1-18 1-A (C1) 6.61 eV	74 H4C5.q2.m3-49 3-A' (CS) 6.76 eV	75 H4C5.q2.m1-34 1-A (C2) 6.78 eV
				
76 H4C5.q2.m1-36 1-A (C1) 6.83 eV	77 H4C5.q2.m3-45 3-A' (CS) 6.93 eV	78 H4C5.q2.m3-21 3-A (C1) 7.21 eV	79 H4C5.q2.m3-20 3-A (C1) 7.24 eV	80 H4C5.q2.m3-34 3-A (C1) 7.52 eV

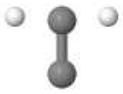
$H_2C_2^{3+}$

1 H2C2.q3.m2-1 2-PIU (D*H) 0.00 eV

HC_3^{3+}				
				
1 HC3.q3.m3-1 3-PI (C*V) 0.00 eV	2 HC3.q3.m1-1 1-SG (C*V) 0.46 eV	3 HC3.q3.m1-2 1-A1 (C2V) 1.40 eV	4 HC3.q3.m1-3 1-A' (CS) 1.64 eV	5 HC3.q3.m3-2 3-B2 (C2V) 1.92 eV

$H_3C_2^{3+}$

1
H3C2.q3.m1-1
1-A1 (C2V)
0.00 eV



2
H3C2.q3.m1-2
1-A' (CS)
3.70 eV

$H_2C_3^{3+}$

1
H2C3.q3.m2-1
2-PIU (D*H)
0.00 eV

2
H2C3.q3.m2-3
2-A' (CS)
1.88 eV

3
H2C3.q3.m4-1
4-A (C1)
2.14 eV

4
H2C3.q3.m4-2
4-A2 (C2V)
2.77 eV

5
H2C3.q3.m2-2
2-A (C2)
2.83 eV

6
H2C3.q3.m2-4
2-A' (CS)
4.17 eV

7
H2C3.q3.m4-3
4-A" (CS)
4.50 eV

8
H2C3.q3.m4-4
4-B2 (C2V)
5.94 eV

HC_4^{3+}

1
HC4.q3.m1-1
1-SG (C*V)
0.00 eV

2
HC4.q3.m3-1
3-PI (C*V)
0.96 eV

3
HC4.q3.m1-5
1-A1 (C2V)
2.46 eV

4
HC4.q3.m3-4
3-B2 (C2V)
2.67 eV

5
HC4.q3.m3-6
3-A1 (C2V)
2.97 eV

6
HC4.q3.m1-2
1-A' (CS)
2.98 eV

7
HC4.q3.m3-2
3-A' (CS)
3.18 eV

8
HC4.q3.m3-5
3-A" (CS)
4.05 eV

$H_3C_3^{3+}$				
 1 H3C3.q3.m1-2 1-A1 (C2V) 0.00 eV	 2 H3C3.q3.m1-1 1-A1 (C2V) 0.90 eV	 3 H3C3.q3.m3-1 3-A" (CS) 1.31 eV	 4 H3C3.q3.m1-3 1-A (C1) 2.41 eV	 5 H3C3.q3.m3-3 3-A (C1) 3.07 eV

$H_2C_4^{3+}$				
 1 H2C4.q3.m2-1 2-PIG (D*H) 0.00 eV	 2 H2C4.q3.m2-9 2-AG (D2H) 1.82 eV	 3 H2C4.q3.m2-4 2-A1 (C2V) 2.04 eV	 4 H2C4.q3.m2-7 2-A' (CS) 2.43 eV	 5 H2C4.q3.m4-6 4-A" (CS) 2.81 eV
 6 H2C4.q3.m4-7 4-A" (CS) 3.05 eV	 7 H2C4.q3.m4-4 4-A2 (C2V) 3.26 eV	 8 H2C4.q3.m2-6 2-A' (CS) 4.25 eV	 9 H2C4.q3.m4-8 4-A2 (C2V) 5.20 eV	 10 H2C4.q3.m4-5 4-A" (CS) 5.58 eV
 11 H2C4.q3.m2-5 2-A" (CS) 6.24 eV				

HC_5^{3+}

1
HC5.q3.m3-1
3-PI (C*V)
0.00 eV

2
HC5.q3.m1-1
1-SG (C*V)
0.71 eV

3
HC5.q3.m1-12
1-A1 (C2V)
2.21 eV

4
HC5.q3.m1-4
1-A' (CS)
2.34 eV

5
HC5.q3.m1-11
1-A1 (C2V)
2.42 eV

6
HC5.q3.m3-3
3-A' (CS)
2.44 eV

7
HC5.q3.m1-3
1-A' (CS)
2.61 eV

8
HC5.q3.m3-5
3-A" (CS)
2.88 eV

9
HC5.q3.m3-11
3-B2 (C2V)
2.97 eV

10
HC5.q3.m3-12
3-B1 (C2V)
3.11 eV

11
HC5.q3.m1-2
1-A1 (C2V)
3.25 eV

12
HC5.q3.m3-8
3-A" (CS)
3.34 eV

13
HC5.q3.m1-13
1-A' (CS)
3.60 eV

14
HC5.q3.m3-13
3-A (C1)
3.60 eV

15
HC5.q3.m1-10
1-A' (CS)
4.29 eV

16
HC5.q3.m1-6
1-A' (CS)
5.43 eV

17
HC5.q3.m3-6
3-A" (CS)
5.79 eV

18
HC5.q3.m3-10
3-A' (CS)
6.45 eV

19
HC5.q3.m3-7
3-A (C1)
6.68 eV

$H_4C_3^{3+}$

1
H4C3.q3.m2-4
2-A (C1)
0.00 eV

2
H4C3.q3.m2-2
2-B1U (D2H)
0.07 eV

3
H4C3.q3.m2-6
2-A1 (C2V)
1.52 eV

4
H4C3.q3.m4-1
4-A (C1)
2.57 eV

5
H4C3.q3.m2-5
2-A' (CS)
2.76 eV

6
H4C3.q3.m4-2
4-A (C1)
2.97 eV

7
H4C3.q3.m2-3
2-A' (CS)
3.23 eV

8
H4C3.q3.m4-4
4-A' (CS)
3.30 eV

9
H4C3.q3.m4-3
4-A (C1)
4.47 eV

10
H4C3.q3.m4-5
4-A (C1)
5.25 eV

$H_3C_4^{3+}$				
 1 H3C4.q3.m1-2 1-A1 (C2V) 0.00 eV	 2 H3C4.q3.m1-12 1-A1 (C2V) 1.01 eV	 3 H3C4.q3.m1-5 1-A' (CS) 1.10 eV	 4 H3C4.q3.m3-5 3-A" (CS) 1.39 eV	 5 H3C4.q3.m3-2 3-A" (CS) 1.70 eV
 6 H3C4.q3.m1-11 1-A' (CS) 2.49 eV	 7 H3C4.q3.m3-3 3-A' (CS) 3.18 eV	 8 H3C4.q3.m1-4 1-A' (CS) 3.20 eV	 9 H3C4.q3.m3-11 3-A" (CS) 3.45 eV	 10 H3C4.q3.m1-3 1-A (C1) 3.53 eV
 11 H3C4.q3.m3-4 3-A" (CS) 3.54 eV	 12 H3C4.q3.m3-1 3-A (C1) 4.05 eV	 13 H3C4.q3.m3-8 3-A" (CS) 4.20 eV	 14 H3C4.q3.m1-1 1-A' (CS) 4.20 eV	 15 H3C4.q3.m1-13 1-A1 (C2V) 4.23 eV
 16 H3C4.q3.m3-12 3-A' (CS) 4.27 eV	 17 H3C4.q3.m3-13 3-B1 (C2V) 4.47 eV	 18 H3C4.q3.m1-8 1-A' (CS) 4.58 eV	 19 H3C4.q3.m1-9 1-A' (CS) 6.20 eV	 20 H3C4.q3.m1-10 1-A (C1) 6.99 eV
 21 H3C4.q3.m3-10 3-A (C1) 7.93 eV				

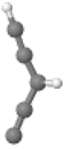
$H_2C_5^{3+}$				
 1 H2C5.q3.m2-1 2-PIG (D*H) 0.00 eV	 2 H2C5.q3.m4-1 4-PI (C*V) 1.96 eV	 3 H2C5.q3.m2-4 2-A' (CS) 2.34 eV	 4 H2C5.q3.m2-6 2-A (C1) 2.50 eV	 5 H2C5.q3.m2-2 2-A (C2) 2.72 eV
 6 H2C5.q3.m4-2 4-A2 (C2V) 2.76 eV	 7 H2C5.q3.m2-20 2-A1 (C2V) 3.38 eV	 8 H2C5.q3.m4-6 4-A" (CS) 3.43 eV	 9 H2C5.q3.m2-14 2-A' (CS) 3.53 eV	 10 H2C5.q3.m4-4 4-A2 (C2V) 3.65 eV
 11 H2C5.q3.m2-29 2-A" (CS) 3.68 eV	 12 H2C5.q3.m2-15 2-A2 (C2V) 4.02 eV	 13 H2C5.q3.m2-28 2-B2 (C2V) 4.35 eV	 14 H2C5.q3.m4-20 4-A" (CS) 4.36 eV	 15 H2C5.q3.m2-26 2-A' (CS) 4.43 eV
 16 H2C5.q3.m2-17 2-A1 (C2V) 4.45 eV	 17 H2C5.q3.m4-19 4-A (C1) 5.03 eV	 18 H2C5.q3.m4-10 4-A" (CS) 5.14 eV	 19 H2C5.q3.m2-24 2-A' (CS) 5.37 eV	 20 H2C5.q3.m4-29 4-B (C2) 5.58 eV
 21 H2C5.q3.m4-26 4-A' (CS) 5.63 eV	 22 H2C5.q3.m4-17 4-A" (CS) 5.69 eV	 23 H2C5.q3.m2-11 2-A' (CS) 5.76 eV	 24 H2C5.q3.m2-5 2-A' (CS) 5.80 eV	 25 H2C5.q3.m2-27 2-A' (CS) 5.84 eV
 26 H2C5.q3.m4-5 4-A' (CS) 5.84 eV	 27 H2C5.q3.m4-16 4-A' (CS) 5.98 eV	 28 H2C5.q3.m4-28 4-A" (CS) 6.19 eV	 29 H2C5.q3.m2-10 2-A (C1) 6.26 eV	 30 H2C5.q3.m4-24 4-A" (CS) 6.45 eV

$H_2C_5^{3+}$ (*Continued from previous page*)				
				
31 H2C5.q3.m4-3 4-A' (CS) 6.51 eV	32 H2C5.q3.m2-3 2-A (C1) 6.53 eV	33 H2C5.q3.m2-8 2-A (C1) 7.13 eV	34 H2C5.q3.m4-13 4-A (C1) 8.09 eV	35 H2C5.q3.m2-9 2-A (C1) 8.95 eV

$H_4C_4^{3+}$				
 1 H4C4.q3.m2-6 2-A (C1) 0.00 eV	 2 H4C4.q3.m2-19 2-B2 (D2) 0.01 eV	 3 H4C4.q3.m2-7 2-BG (C2H) 0.38 eV	 4 H4C4.q3.m2-13 2-A2 (C2V) 0.49 eV	 5 H4C4.q3.m2-2 2-A (C1) 0.78 eV
 6 H4C4.q3.m2-4 2-A' (CS) 0.85 eV	 7 H4C4.q3.m4-19 4-B3G (D2H) 2.11 eV	 8 H4C4.q3.m2-14 2-A" (CS) 2.16 eV	 9 H4C4.q3.m2-12 2-A' (CS) 2.33 eV	 10 H4C4.q3.m2-15 2-A (C1) 2.50 eV
 11 H4C4.q3.m4-6 4-A (C1) 2.59 eV	 12 H4C4.q3.m4-4 4-A (C1) 2.79 eV	 13 H4C4.q3.m4-7 4-A (C1) 2.84 eV	 14 H4C4.q3.m2-5 2-A' (CS) 3.00 eV	 15 H4C4.q3.m2-3 2-A (C1) 3.13 eV
 16 H4C4.q3.m4-2 4-A" (CS) 3.31 eV	 17 H4C4.q3.m2-10 2-A (C1) 3.45 eV	 18 H4C4.q3.m4-11 4-A" (CS) 3.78 eV	 19 H4C4.q3.m2-17 2-A1 (C2V) 3.84 eV	 20 H4C4.q3.m4-1 4-A (C1) 4.06 eV
 21 H4C4.q3.m4-8 4-A (C1) 4.18 eV	 22 H4C4.q3.m2-1 2-A (C1) 4.20 eV	 23 H4C4.q3.m2-11 2-A' (CS) 4.29 eV	 24 H4C4.q3.m4-5 4-A (C1) 4.52 eV	 25 H4C4.q3.m4-3 4-A (C1) 4.74 eV
 26 H4C4.q3.m4-10 4-A (C1) 4.84 eV	 27 H4C4.q3.m4-18 4-A1 (C3V) 5.59 eV	 28 H4C4.q3.m4-14 4-A (C1) 5.65 eV	 29 H4C4.q3.m4-15 4-A2 (C2V) 5.76 eV	 30 H4C4.q3.m2-16 2-AG (C2H) 6.18 eV

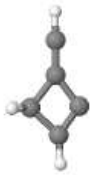
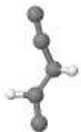
$H_4C_4^{3+}$ (*Continued from previous page*)		
		
31 H4C4.q3.m4-16 4-A' (CS) 6.70 eV	32 H4C4.q3.m4-17 4-A (C1) 6.90 eV	33 H4C4.q3.m2-9 2-A (C1) 7.55 eV

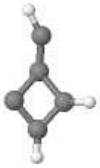
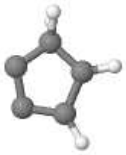
$H_3C_5^{3+}$				
 1 H3C5.q3.m1-7 1-A' (CS) 0.00 eV	 2 H3C5.q3.m1-2 1-A1 (C2V) 0.28 eV	 3 H3C5.q3.m3-2 3-A2 (C2V) 0.81 eV	 4 H3C5.q3.m3-27 3-B2 (C2V) 1.46 eV	 5 H3C5.q3.m3-7 3-A (C1) 1.66 eV
 6 H3C5.q3.m1-27 1-A' (CS) 1.75 eV	 7 H3C5.q3.m1-37 1-A1 (C2V) 2.39 eV	 8 H3C5.q3.m1-10 1-A' (CS) 2.54 eV	 9 H3C5.q3.m1-13 1-A (C1) 2.56 eV	 10 H3C5.q3.m1-22 1-A' (CS) 2.70 eV
 11 H3C5.q3.m1-5 1-A (C1) 2.88 eV	 12 H3C5.q3.m1-3 1-A (C1) 2.94 eV	 13 H3C5.q3.m1-32 1-A' (CS) 2.98 eV	 14 H3C5.q3.m3-3 3-A (C1) 3.07 eV	 15 H3C5.q3.m1-50 1-A (C1) 3.13 eV
 16 H3C5.q3.m3-10 3-A" (CS) 3.23 eV	 17 H3C5.q3.m1-6 1-A (C1) 3.25 eV	 18 H3C5.q3.m3-36 3-A (C1) 3.29 eV	 19 H3C5.q3.m3-22 3-A' (CS) 3.36 eV	 20 H3C5.q3.m1-1 1-A1 (C3V) 3.43 eV
 21 H3C5.q3.m3-37 3-A" (CS) 3.49 eV	 22 H3C5.q3.m3-40 3-A' (CS) 3.51 eV	 23 H3C5.q3.m3-4 3-A' (CS) 3.53 eV	 24 H3C5.q3.m3-5 3-A (C1) 3.56 eV	 25 H3C5.q3.m3-8 3-A (C1) 3.68 eV
 26 H3C5.q3.m1-48 1-A' (CS) 3.73 eV	 27 H3C5.q3.m1-49 1-A (C1) 3.75 eV	 28 H3C5.q3.m3-6 3-A (C1) 3.80 eV	 29 H3C5.q3.m3-31 3-A' (CS) 3.81 eV	 30 H3C5.q3.m3-32 3-A' (CS) 3.92 eV

$H_3C_5^{3+}$ (*Continued from previous page*)				
 31 H3C5.q3.m3-50 3-B (C2) 3.96 eV	 32 H3C5.q3.m1-39 1-A' (CS) 4.13 eV	 33 H3C5.q3.m3-1 3-A (C1) 4.17 eV	 34 H3C5.q3.m3-9 3-A (C1) 4.17 eV	 35 H3C5.q3.m1-31 1-A (C1) 4.46 eV
 36 H3C5.q3.m3-13 3-A (C1) 4.47 eV	 37 H3C5.q3.m1-47 1-A' (CS) 4.53 eV	 38 H3C5.q3.m3-49 3-A" (CS) 4.59 eV	 39 H3C5.q3.m3-38 3-A" (CS) 4.63 eV	 40 H3C5.q3.m3-39 3-A (C1) 5.11 eV
 41 H3C5.q3.m3-15 3-A' (CS) 5.13 eV	 42 H3C5.q3.m1-11 1-A (C1) 5.33 eV	 43 H3C5.q3.m1-14 1-A (C1) 5.59 eV	 44 H3C5.q3.m1-8 1-A' (CS) 5.67 eV	 45 H3C5.q3.m3-28 3-A (C1) 5.76 eV
 46 H3C5.q3.m1-34 1-A' (CS) 5.76 eV	 47 H3C5.q3.m1-9 1-A' (CS) 5.83 eV	 48 H3C5.q3.m3-23 3-B2 (C2V) 5.91 eV	 49 H3C5.q3.m3-24 3-A (C1) 6.18 eV	 50 H3C5.q3.m1-23 1-A' (CS) 6.25 eV
 51 H3C5.q3.m1-29 1-A' (CS) 6.28 eV	 52 H3C5.q3.m3-20 3-A (C1) 6.33 eV	 53 H3C5.q3.m3-34 3-A (C1) 6.37 eV	 54 H3C5.q3.m3-44 3-A (C1) 6.61 eV	 55 H3C5.q3.m1-45 1-A' (CS) 6.65 eV
 56 H3C5.q3.m3-29 3-A (C1) 6.81 eV	 57 H3C5.q3.m1-16 1-A (C1) 6.86 eV	 58 H3C5.q3.m3-43 3-A (C1) 7.03 eV	 59 H3C5.q3.m1-19 1-A (C1) 7.04 eV	 60 H3C5.q3.m3-26 3-A" (CS) 7.82 eV

$H_3C_5^{3+}$ (*Continued from previous page*)	
	
61 H3C5.q3.m3-45 3-A" (CS) 9.36 eV	62 H3C5.q3.m1-21 1-A (C1) 9.47 eV

$H_4C_5^{3+}$				
 1 H4C5.q3.m2-28 2-A' (CS) 0.00 eV	 2 H4C5.q3.m2-17 2-B1 (C2V) 0.02 eV	 3 H4C5.q3.m2-11 2-A' (CS) 0.13 eV	 4 H4C5.q3.m2-10 2-A (C1) 0.39 eV	 5 H4C5.q3.m2-53 2-A' (CS) 0.54 eV
 6 H4C5.q3.m2-1 2-A (C1) 0.67 eV	 7 H4C5.q3.m2-46 2-A (C1) 1.14 eV	 8 H4C5.q3.m2-32 2-A1 (C2V) 1.17 eV	 9 H4C5.q3.m4-28 4-A" (CS) 1.21 eV	 10 H4C5.q3.m2-41 2-A' (CS) 1.22 eV
 11 H4C5.q3.m2-60 2-A' (CS) 1.58 eV	 12 H4C5.q3.m4-17 4-A" (CS) 2.04 eV	 13 H4C5.q3.m4-1 4-A (C1) 2.07 eV	 14 H4C5.q3.m2-6 2-A (C1) 2.13 eV	 15 H4C5.q3.m2-44 2-A (C1) 2.26 eV
 16 H4C5.q3.m4-5 4-A" (CS) 2.28 eV	 17 H4C5.q3.m4-11 4-A' (CS) 2.40 eV	 18 H4C5.q3.m2-8 2-A' (CS) 2.42 eV	 19 H4C5.q3.m2-14 2-A (C1) 2.48 eV	 20 H4C5.q3.m4-30 4-A2 (C2V) 2.54 eV
 21 H4C5.q3.m2-30 2-A (C1) 2.55 eV	 22 H4C5.q3.m2-16 2-A' (CS) 2.59 eV	 23 H4C5.q3.m2-24 2-A (C1) 2.64 eV	 24 H4C5.q3.m2-65 2-A (C1) 2.92 eV	 25 H4C5.q3.m4-10 4-A (C1) 2.97 eV
 26 H4C5.q3.m4-3 4-A (C1) 2.99 eV	 27 H4C5.q3.m2-54 2-A (C1) 3.02 eV	 28 H4C5.q3.m2-39 2-A (C1) 3.06 eV	 29 H4C5.q3.m2-3 2-A (C1) 3.07 eV	 30 H4C5.q3.m2-23 2-A' (CS) 3.34 eV

$H_4C_5^{3+}$ (*Continued from previous page*)				
 31 H4C5.q3.m4-6 4-A" (CS) 3.35 eV	 32 H4C5.q3.m2-2 2-A (C1) 3.51 eV	 33 H4C5.q3.m4-14 4-A2 (C2V) 3.56 eV	 34 H4C5.q3.m4-25 4-A (C1) 3.68 eV	 35 H4C5.q3.m2-25 2-A (C1) 3.68 eV
 36 H4C5.q3.m2-62 2-A (C1) 3.71 eV	 37 H4C5.q3.m4-4 4-A (C1) 3.82 eV	 38 H4C5.q3.m2-59 2-A (C1) 3.88 eV	 39 H4C5.q3.m2-56 2-A' (CS) 3.98 eV	 40 H4C5.q3.m2-38 2-A' (CS) 3.98 eV
 41 H4C5.q3.m2-27 2-A (C1) 4.02 eV	 42 H4C5.q3.m4-46 4-A (C1) 4.03 eV	 43 H4C5.q3.m4-24 4-A" (CS) 4.11 eV	 44 H4C5.q3.m4-32 4-A" (CS) 4.15 eV	 45 H4C5.q3.m4-22 4-A (C1) 4.18 eV
 46 H4C5.q3.m4-60 4-A (C1) 4.18 eV	 47 H4C5.q3.m4-26 4-A" (CS) 4.21 eV	 48 H4C5.q3.m4-41 4-A" (CS) 4.23 eV	 49 H4C5.q3.m4-13 4-A' (CS) 4.24 eV	 50 H4C5.q3.m4-2 4-A (C1) 4.30 eV
 51 H4C5.q3.m4-50 4-A' (CS) 4.39 eV	 52 H4C5.q3.m2-64 2-B1 (C2V) 4.39 eV	 53 H4C5.q3.m4-33 4-A (C1) 4.45 eV	 54 H4C5.q3.m4-9 4-A" (CS) 4.45 eV	 55 H4C5.q3.m4-8 4-A' (CS) 4.52 eV
 56 H4C5.q3.m2-33 2-A' (CS) 4.54 eV	 57 H4C5.q3.m4-65 4-A" (CS) 4.57 eV	 58 H4C5.q3.m4-63 4-A (C1) 4.62 eV	 59 H4C5.q3.m4-29 4-A" (CS) 4.63 eV	 60 H4C5.q3.m4-23 4-A (C1) 4.72 eV

$H_4C_5^{3+}$ (*Continued from previous page*)				
 61 H4C5.q3.m2-29 2-A' (CS) 4.73 eV	 62 H4C5.q3.m2-51 2-A (C1) 4.75 eV	 63 H4C5.q3.m4-55 4-A (C1) 4.78 eV	 64 H4C5.q3.m4-7 4-A (C1) 4.79 eV	 65 H4C5.q3.m4-54 4-A (C1) 4.94 eV
 66 H4C5.q3.m4-39 4-A (C1) 5.00 eV	 67 H4C5.q3.m4-40 4-A (C1) 5.10 eV	 68 H4C5.q3.m4-38 4-A2 (C2V) 5.14 eV	 69 H4C5.q3.m4-62 4-A (C1) 5.20 eV	 70 H4C5.q3.m4-44 4-A" (CS) 5.26 eV
 71 H4C5.q3.m4-59 4-A' (CS) 5.31 eV	 72 H4C5.q3.m4-18 4-A (C1) 5.32 eV	 73 H4C5.q3.m4-43 4-A (C1) 5.35 eV	 74 H4C5.q3.m4-47 4-A" (CS) 5.37 eV	 75 H4C5.q3.m4-56 4-A" (CS) 5.40 eV
 76 H4C5.q3.m4-42 4-A (C1) 5.42 eV	 77 H4C5.q3.m4-37 4-A (C1) 5.44 eV	 78 H4C5.q3.m4-15 4-A" (CS) 5.72 eV	 79 H4C5.q3.m2-57 2-A (C1) 5.75 eV	 80 H4C5.q3.m2-45 2-A (C1) 5.76 eV
 81 H4C5.q3.m4-64 4-A (C1) 6.14 eV	 82 H4C5.q3.m4-12 4-A (C1) 6.69 eV	 83 H4C5.q3.m2-19 2-A (C1) 6.82 eV	 84 H4C5.q3.m4-34 4-A" (CS) 6.86 eV	 85 H4C5.q3.m4-57 4-A (C1) 6.95 eV