

UNIVERSITY OF LEIPZIG

ADVANCED LABS

Lab report

Rotation-Vibration Spectra of Molecules

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Conducted on:

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1 Introduction

2 Analysis

3 Conclusion

Appendices

A Task 1 Tables

| Polystyrene | | |
|-------------|--------------|----------|
| Theoretical | Experimental | % Change |
| 699.45 | 699.125 | -0.0465 |
| 756.58 | 756.625 | 0.00595 |
| 842.00 | 841.375 | -0.0742 |
| 906.80 | 907.75 | 0.105 |
| 965.70 | 965.875 | 0.0181 |
| 1028.30 | 1028.875 | 0.0559 |
| 1069.10 | 1069.375 | 0.0257 |
| 1154.60 | 1155.75 | 0.0996 |
| 1368.50 | 1367.75 | -0.0548 |
| 1449.70 | 1449.375 | -0.0224 |
| 1542.20 | 1541.75 | -0.0292 |
| 1583.10 | 1584.125 | 0.0647 |
| 1601.40 | 1602.75 | 0.0843 |
| 1803.80 | 1804.25 | 0.0249 |
| 1945.20 | 1944.5 | -0.0360 |
| 2850.00 | 2853.00 | 0.105 |
| 2920.90 | 2921.25 | 0.0120 |
| 3001.40 | 3003.875 | 0.0825 |
| 3026.40 | 3027.125 | 0.0240 |
| 3060.00 | 3063.00 | 0.0980 |
| 3082.20 | 3084.875 | 0.0868 |

Table 1

| Water Vapour | | |
|--------------|--------------|----------|
| Theoretical | Experimental | % Change |
| 1416.08 | 1417.50 | 0.100 |
| 1601.20 | 1602.875 | 0.105 |
| 1792.65 | 1792.75 | 0.006 |
| 1799.61 | 1801.375 | 0.098 |
| 1802.47 | 1803.125 | 0.036 |
| 1807.7 | 1806.875 | -0.046 |
| 1810.62 | 1809.50 | -0.062 |
| 2018.32 | 2018.75 | 0.021 |
| 2041.3 | 2043.375 | 0.102 |

Table 2