## Department of Chemistry Instrumentation Facility



## **NMR Frequency Table**

Isotope	Spin	Abundance	NMR Frequency (MHz) at field (T)					
		(%)	5.8717	7.0460	9.3947	11.7434	14.0921	
<sup>1</sup> H	1/2	99.98	250.000	300.000	400.000	500.000	600.000	
<sup>2</sup> H	1	1.5x10 <sup>-2</sup>	38.376	46.051		76.753		
<sup>3</sup> H	1/2	0	266.658	319.990		533.317		
<sup>3</sup> He	1/2	1.3x10 <sup>-4</sup>	190.444	228.533		380.888		
<sup>6</sup> Li	1	7.42	36.789	44.146		73.578		
<sup>7</sup> Li	3/2	92.58	97.158	116.590		194.317		
<sup>9</sup> Be	3/2	100	35.133	42.160		70.267		
<sup>10</sup> B	3	19.58	26.866	32.239		53.732		
<sup>11</sup> B	3/2	80.42	80.209	96.251		160.419		
<sup>13</sup> C	1/2	1.108	62.860	75.432		125.721		
<sup>14</sup> N	1	99.63	18.059	21.671		36.118		
<sup>15</sup> N	1/2	0.37	25.332	30.398		50.664		
<sup>17</sup> O	5/2	3.7x10 <sup>-2</sup>	33.892	40.670		67.784		
<sup>19</sup> F	1/2	100	235.192	282.231		470.385		
<sup>21</sup> Ne	3/2	0.257	19.736	23.683		39.472		
<sup>23</sup> Na	3/2	100	66.128	79.353		132.256		
<sup>25</sup> Mg	5/2	10.13	15.298	18.358		30.597		
<sup>27</sup> AI	5/2	100	65.143	78.172		130.287		
<sup>29</sup> Si	1/2	4.7	49.662	59.595		99.325		
<sup>31</sup> P	1/2	100	101.202	121.442		202.404		
<sup>33</sup> S	3/2	0.76	19.174	23.009		38.348		
<sup>35</sup> CI	3/2	75.53	24.495	29.395		48.991		
<sup>37</sup> CI	3/2	24.47	20.389	24.467		40.779		
<sup>39</sup> K	3/2	93.1	11.666	13.999		23.333		
<sup>41</sup> K	3/2	6.88	6.403	7.684		12.806		
<sup>43</sup> Ca	7/2	0.145	16.820	20.184		33.641		
<sup>45</sup> Sc	7/2	100	60.735	72.882		121.470		
<sup>47</sup> Ti	5/2	7.28	14.092	16.910		28.164		
<sup>49</sup> Ti	7/2	5.51	14.095	16.914		28.191		

<sup>50</sup> V	6	0.24	24.926	29.911	49.852
<sup>51</sup> V	7/2	99.76	65.720	78.864	131.440
<sup>53</sup> Cr	3/2	9.55	14.130	16.956	28.260
<sup>55</sup> Mn	5/2	100	61.661	73.993	123.322
<sup>57</sup> Fe	1/2	2.19	8.078	9.693	16.156
<sup>59</sup> Co	7/2	100	59.035	70.842	118.071
<sup>61</sup> Ni	3/2	1.19	22.340	26.808	44.681
<sup>63</sup> Cu	3/2	69.09	66.262	79.515	132.525
<sup>65</sup> Cu	3/2	30.91	70.958	85.183	141.972
<sup>67</sup> Zn	5/2	4.11	15.635	18.762	31.271
<sup>69</sup> Ga	3/2	60.4	60.008	72.009	120.016
<sup>71</sup> Ga	3/2	39.6	76.238	91.485	152.476
<sup>73</sup> Ge	9/2	7.76	8.721	10.465	17.442
<sup>75</sup> As	3/2	100	42.817	51.380	85.634
<sup>77</sup> Se	1/2	7.58	47.669	57.203	95.338
<sup>79</sup> Br	3/2	50.54	62.633	75.160	125.267
<sup>81</sup> Br	3/2	49.46	67.515	81.018	135.031
<sup>83</sup> Kr	9/2	11.55	9.619	11.543	19.238
<sup>85</sup> Rb	5/2	72.15	24.138	28.965	48.276
<sup>87</sup> Rb	3/2	27.85	81.803	98.163	163.606
<sup>87</sup> Sr	9/2	7.02	10.834	13.001	21.669
89 <b>Y</b>	1/2	100	12.248	14.697	24.496
<sup>91</sup> Zr	5/2	11.23	23.325	27.991	46.651
<sup>93</sup> Nb	9/2	100	61.107	73.328	1222.214
<sup>95</sup> Mo	5/2	15.72	16.287	19.544	32.574
<sup>97</sup> Mo	5/2	9.46	16.630	19.957	33.261
<sup>99</sup> Ru	3/2	12.72	8.474	10.169	16.949
<sup>101</sup> Ru	5/2	17.07	12.353	14.824	24.707
<sup>103</sup> Rh	1/2	100	7.868	9.442	15.737
<sup>105</sup> Pd	5/2	22.23	11.440	13.728	22.881
<sup>107</sup> Ag	1/2	51.82	10.116	12.139	20.233
<sup>109</sup> Ag	1/2	48.18	11.630	13.956	23.260
<sup>111</sup> Cd	1/2	12.75	53.013	63.616	106.027
<sup>113</sup> Cd	1/2	12.26	55.457	66.548	110.914
<sup>113</sup> In	9/2	4.28	54.666	65.600	109.333
<sup>115</sup> In	9/2	95.72	54.785	65.742	109.570
<sup>115</sup> Sn	1/2	0.35	81.749	98.0999	163.498
<sup>117</sup> Sn	1/2	7.61	89.063	106.875	178.126

<sup>179</sup> Hf <sup>181</sup> Ta	9/2	13.75	4.674	5.609	9.349
<sup>177</sup> Hf	7/2	18.5	7.801	9.361	15.602
<sup>176</sup> Lu	7	2.59	19.822	23.786	39.644
<sup>175</sup> Lu	7/2	97.41	28.518	34.222	57.036
<sup>173</sup> Yb	5/2	16.13	12.130	14.556	24.261
<sup>171</sup> Yb	1/2	14.31	44.032	52.839	88.069
<sup>169</sup> Tm	1/2	100	20.679	24.814	41.358
<sup>167</sup> Er	7/2	22.94	7.266	8.671	14.451
<sup>165</sup> Ho	7/2	100	51.282	61.538	102.564
<sup>163</sup> Dy	5/2	24.97	11.458	13.750	22.917
<sup>161</sup> Dy	5/2	18.88	8.236	9.883	16.471
<sup>159</sup> Tb	3/2	100	56.695	68.035	113.391
<sup>157</sup> Gd	3/2	15.68	11.935	14.323	23.871
<sup>155</sup> Gd	3/2	14.74	9.549	11.458	19.097
<sup>153</sup> Eu	5/2	52.18	27.378	32.854	54.757
<sup>151</sup> Eu	5/2	47.82	62.001	74.401	124.002
<sup>149</sup> Sm	7/2	13.83	8.224	9.868	16.446
<sup>147</sup> Sm	7/2	14.97	10.320	12.384	20.640
<sup>145</sup> Nd	7/2	8.3	8.364	10.036	16.727
<sup>143</sup> Nd	7/2	12.17	13.594	16.313	27.188
<sup>141</sup> Pr	5/2	100	73.227	87.872	146.454
<sup>139</sup> La	7/2	99.91	35.315	42.378	70.631
<sup>138</sup> La	5	0.089	32.982	39.579	65.965
<sup>137</sup> Ba	3/2	11.32	27.783	33.339	55.566
<sup>135</sup> Ba	3/2	6.59	24.835	29.802	49.670
<sup>133</sup> Cs	7/2	100	32.792	39.351	65.585
<sup>131</sup> Xe	3/2	21.18	20.499	24.598	40.998
<sup>129</sup> Xe	1/2	26.44	69.151	82.981	138.302
<sup>127</sup> l	5/2	100	50.018	60.021	100.036
<sup>125</sup> Te	1/2	6.99	78.992	94.790	157.984
<sup>123</sup> Te	1/2	0.87	65.519	78.623	131.039
<sup>123</sup> Sb	7/2	42.75	32.398	38.878	64.796
<sup>121</sup> Sb	5/2	57.25	59.826	71.791	119.652

<sup>187</sup> Re					
<sup>187</sup> Os	1/2	1.64	5.758	6.909	11.515
<sup>189</sup> Os	3/2	16.1	19.397	23.276	38.794
<sup>191</sup> Ir	3/2	37.3	4.296	5.156	8.593
<sup>193</sup> lr	3/2	62.7	4.678	5.614	9.357
<sup>195</sup> Pt	1/2	33.8	53.747	64.497	107.495
<sup>197</sup> Au	3/2	100	4.281	5.138	8.563
<sup>199</sup> Hg	1/2	16.84	44.568	53.481	89.136
<sup>201</sup> Hg	3/2	13.22	16.499	19.799	32.998
<sup>203</sup> TI	1/2	29.5	142.873	171.448	285.747
<sup>205</sup> TI	1/2	70.5	144.270	173.124	288.540
<sup>207</sup> Pb	1/2	22.6	52.304	62.765	104.609
<sup>209</sup> Bi	9/2	100	40.174	48.208	80.348
<sup>235</sup> U	7/2	0.72	4.475	5.371	8.951