

STable 1. Observed frequencies (in wavenumbers) and observed-calculated values (in  $10^{-4}$  wavenumbers) of rotational transitions in the  ${}^2\Sigma^+$  ground state of  $[\text{Ar-N}_2]^+$  upon excitation of the NN stretching fundamental.

N	J	$\nu$	o-c	$\nu$	o-c
		P <sub>1</sub> -branch		P <sub>2</sub> -branch	
17	35/2	2267.7516	-1		
16	33/2	2268.0258	10	2267.7382	-13
15	31/2	2268.2986	16	2268.0131	3
14	29/2	2268.5682	0	2268.2857	6
13	27/2	2268.8384	-1	2268.5562	-1
12	25/2	2269.1073	-4	2268.8261	-6
11	23/2	2269.3757	-3	2269.0952	-8
10	21/2	2269.6429	-4	2269.3635	-9
9	19/2	2269.9106	11	2269.6307	-10
8	17/2	2270.1751	2	2269.8986	5
7	15/2	2270.4391	-1	2270.1637	2
6	13/2	2270.7032	7	2270.4275	-4
5	11/2	2270.9649	0	2270.6912	-2
4	9/2	2271.2256	-6	2270.9537	-1
3	7/2	2271.4866	0	2271.2150	-2
2	5/2	2271.7460	0	2271.4762	5
1	3/2	2272.0043	0	2271.7359	7
		Q <sub>12</sub>		Q <sub>21</sub>	
	1/2	2272.5212	-22	2271.9909	26
		R <sub>1</sub> -branch		R <sub>2</sub> -branch	
0	1/2	2272.5082	6	2272.7727	-8
1	3/2	2272.7634	4	2273.0279	1
2	5/2	2273.0178	3	2273.2810	-2
3	7/2	2273.2711	1	2273.5334	-2
4	9/2	2273.5233	-1	2273.7853	4
5	11/2	2273.7752	4	2274.0345	-7
6	13/2	2274.0240	-13	2274.2844	-1
7	15/2	2274.2742	-5	2274.5332	4
8	17/2	2274.5229	-1	2274.7806	5
9	19/2	2274.7705	1	2275.0267	4
10	21/2	2275.0165	-2	2275.2710	-5
11	23/2	2275.2612	-8	2275.5160	3
12	25/2	2275.5062	-1	2275.7592	4
13	27/2	2275.7493	-2	2276.0024	15
14	29/2	2275.9922	5	2276.2425	5
15	31/2	2276.2324	-4	2276.4822	3
16	33/2	2276.4725	-4	2276.7208	-1
17	35/2	2276.7118	-1	2276.9586	-2
18	37/2	2276.9495	-4		