Vibrationally Hot Bands of the SiCN $\tilde{A}\ ^2\Delta$ – $\tilde{X}\ ^2\Pi$ System

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TABLE A-1
The $\tilde{A}$ (01^10) $^2\Phi_{\frac{5}{2}}$ − $\tilde{X}$ (01^10) $^2\Delta_{\frac{3}{2}}$ vibronic sub-band of SiCN (in cm^{-1}).

J''	$^pP_1(J'')$		$rQ_1(J'')$		$^rR_1(J'')$	
	Obs.	O−C	Obs.	O−C	Obs.	O−C
2.5			29420.5973	0.0009		
3.5			29420.6288	0.0039	29422.3191	-0.013
4.5	29418.9618	0.0071	29420.6591	-0.0028	29422.7443	-0.0047
5.5	29418.6199	-0.0007	29420.717	0.0093	29423.165	-0.0098
6.5	29418.2852	-0.0099	29420.7525	-0.0097	29423.5821	-0.0277
7.5	29417.9754	-0.0032	29420.8166	-0.0095	29424.0494	-0.0048
8.5	29417.6724	0.0012	29420.8988	-0.0006	29424.5109	0.0024
9.5	29417.3703	-0.0031	29420.9652	-0.0174	29424.9735	0.0006
10.5	29417.0808	-0.0046	29421.0656	-0.0102	29425.4622	0.0144
11.5	29416.8116	0.0042	29421.1698	-0.0097	29425.9397	0.0061
12.5	29416.552	0.012	29421.2878	-0.0062	29426.4388	0.0084
13.5	29416.2892	0.0057	29421.4213	0.0015	29426.9465	0.0078
14.5	29416.0376	-0.0004	29421.5398	-0.0171	29427.4633	0.0046
15.5	29415.7923	-0.0116	29421.7237	0.0179	29427.9927	0.0017
16.5	29415.5777	-0.004	29421.8979	0.0311	29428.5398	0.0044
17.5	29415.3677	-0.0038	29422.0356	-0.0046	29429.093	0.0004
18.5	29415.1714	-0.0023	29422.2339	0.0077	29429.6541	-0.0085
19.5	29414.9989	0.0103	29422.4275	0.0024	29430.2493	0.0034
20.5	29414.8077	-0.0087	29422.6405	0.0033	29430.8477	0.0052
21.5	29414.6732	0.016	29422.8594	-0.0032	29431.4593	0.0066
22.5	29414.522	0.0105	29423.0931	-0.0085	29432.103	0.0263
23.5	29414.3764	-0.003	29423.3538	-0.0007	29432.73	0.0153
24.5			29423.6135	-0.0078	29433.3903	0.0234
25.5			29423.906	0.0036	29434.0399	0.0064
26.5			29424.1756	-0.0221	29434.7102	-0.0043
27.5					29435.4031	-0.007

TABLE A-2

The $\tilde{A}$ (01^10) $^2\Phi_{\frac{7}{2}}$ $-$ $\tilde{X}$ (01^10) $^2\Delta_{\frac{3}{2}}$ vibronic sub-band of SiCN (in cm^{-1}).

J''	$^qP_{21}(J'')$		$rQ_{21}(J'')$		$^sR_{21}(J'')$	
	Obs.	O−C	Obs.	O−C	Obs.	O−C
5.5			29429.6541	-0.0188		
6.5			29429.825	-0.0109	29432.7929	-0.0141
7.5			29430.0321	0.0088	29433.3915	0.002
8.5			29430.2416	0.0069	29433.9905	-0.0052
9.5			29430.4776	0.0079	29434.642	0.0168
10.5			29430.7303	0.0023	29435.3061	0.0283
11.5			29431.0045	-0.0049	29435.965	0.0121
12.5			29431.3186	0.0051	29436.6321	-0.0184
13.5			29431.6467	0.0068	29437.379	0.0089
14.5			29432.0101	0.0217		
15.5			29432.3751	0.0167		
16.5			29432.73	-0.02		
17.5			29433.1615	-0.0013		
18.5			29433.5925	-0.0037		
19.5			29434.0399	-0.0105		
20.5			29434.5052	-0.0195		
21.5			29435.0108	-0.0086		
22.5			29435.5219	-0.0118		
23.5			29436.064	-0.0038		
24.5			29436.6321	0.0107		
25.5			29437.1864	-0.0079		
26.5			29437.7748	-0.0115		

TABLE A-3

The $\tilde{A}$ (01^10) $^2\Phi_{\frac{7}{2}}$ – $\tilde{X}$ (01^10) $^2\Delta_{\frac{5}{2}}$ vibronic sub-band of SiCN (in cm^{-1}).

J''	$^pP_2(J'')$		$qQ_2(J'')$		$^rR_2(J'')$	
	Obs.	O−C	Obs.	O−C	Obs.	O−C
3.5			29300.1469	0.01	29301.9165	-0.0043
4.5	29298.4838	0.022	29300.2574	0.0116		
5.5	29298.2178	0.0193			29302.9406	-0.0133
6.5			29300.555	0.0205		
7.5			29300.7317	0.0179	29304.1001	0.0202
8.5	29297.56	0.0102	29300.9197	0.0036	29304.6755	-0.0015
9.5	29297.3737	-0.0062	29301.1214	-0.0196	29305.2976	0.0011
10.5			29301.3678	-0.0203	29305.9156	-0.0222
11.5			29301.6384	-0.0188	29306.5837	-0.017
12.5					29307.2716	-0.0134

TABLE A-4
The $\tilde{A}$ (01^10) $^2\Pi$ – $\tilde{X}$ (01^10) $^2\Sigma^{(-)}$ vibronic band of SiCN [a] (in cm^{-1}).

J''	$^oP_{12}(J'')$		$^pP_1(J'')$		$^qQ_{12}(J'')$	$^qQ_1(J'')$		$^qR_{12}(J'')$	$^rR_1(J'')$		$^pP_2(J'')$	$^qP_{21}(J'')$	$^qQ_2(J'')$	$^rQ_{21}(J'')$	$^rR_2(J'')$		$^sR_{21}(J'')$	
	Obs.	O−C	Obs.	O−C		Obs.	O−C		Obs.	O−C					Obs.	O−C	Obs.	O−C
1.5						29446.2201	0.0075											
2.5						29446.3727	-0.0014											
3.5						29446.5673	0.0238											
4.5						29446.729	0.0081											
5.5						29446.8907	-0.0159		29449.3848	0.0037								
6.5	29442.6303	-0.0075				29447.1204	0.0198		29449.9471	-0.0093					29457.9671	0.0282		
7.5	29442.1621	-0.013	29444.4388	-0.0086		29447.3067	0.0034		29450.5516	0.011					29458.3716	0.0047		
8.5	29441.7084	-0.0127	29444.2671	-0.0103		29447.5257	0.0109		29451.1309	-0.003					29458.8097	-0.0073		
9.5	29441.2748	-0.0011	29444.0926	-0.0237		29447.7478	0.0124		29451.7204	-0.0163					29459.2596	-0.0297		
10.5	29440.8381	-0.0017	29443.9525	-0.0117		29447.9725	0.007		29452.355	0.006					29459.7874	0.0042		
11.5	29440.4139	0.008	29443.8171	-0.0045					29452.9725	0.0012					29460.2936	-0.005		
12.5	29439.9945	-0.0016	29443.6848	-0.0039		29448.4562	0.0014		29453.5966	-0.0073					29460.8446	0.0094		
13.5	29439.6051	0.016	29443.5723	0.0067					29454.2437	-0.0033					29461.3947	0.0021		
14.5	29439.1922	0	29443.454	0.0012											29461.9627	-0.008		
15.5	29438.8157	0.0098	29443.352	0.0015											29462.5542	-0.0149		
16.5	29438.4215	-0.0089	29443.2655	0.0066											29463.1757	-0.0119	29468.0491	0.0329
17.5	29438.0815	0.0157	29443.1838	0.0053											29463.8062	-0.0198		
18.5	29437.7241	0.0115	29443.0966	-0.0126											29464.4982	0.0143		
19.5	29437.379	0.0082	29443.0422	-0.0094														
20.5			29442.995	-0.0107														

[a] O−C means the observed line frequency minus that calculated by the constants derived from the analysis without the l-type doubling.