

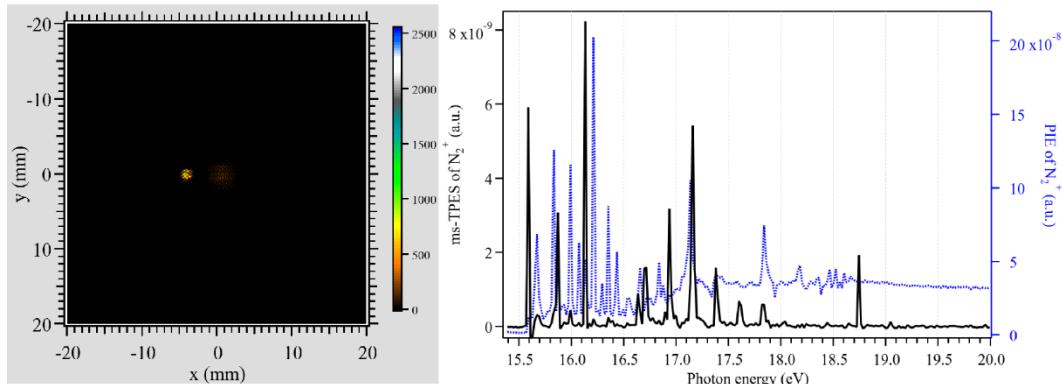
## Supporting Information

### Dissociation of High-Lying Electronic States of $\text{NO}_2^+$ in the 15.5-20 eV Region

Xiaofeng Tang,<sup>†,\*</sup> Gustavo A. Garcia,<sup>‡,\*</sup> and Laurent Nahon<sup>‡</sup>

<sup>†</sup>Laboratory of Atmospheric Physico-Chemistry, Anhui Institute of Optics and Fine Mechanics, HFIPS, Chinese Academy of Sciences, Hefei, 230031 Anhui, China. E-mail: tangxf@aiofm.ac.cn

<sup>‡</sup>Synchrotron SOLEIL, L'Orme des Merisiers, St. Aubin BP 48, 91192 Gif sur Yvette, France. E-mail: gustavo.garcia@synchrotron-soleil.fr



**Figure S1.** The ion image of  $m/z$  28, and its mass-selected threshold photoelectron spectrum (TPES, black solid line) and photoionization efficiency curve (PIE, blue dotted line) of  $\text{N}_2$  in the 15.5-20 eV energy range.

**Table S1. The Total Average Kinetic Energies and the Available Energies (in Brackets) Released in the Dissociation of  $\text{NO}_2^+$  towards Each Limit. (Unit: eV)**

States	O + $\text{NO}^+$				$\text{O}^+ + \text{NO}$	$\text{N} + \text{O}_2^+$
	DL1	DL2	DL3	DL6	DL5	DL4
FC gap ( $\leq 16.2$ eV)	--	1(1.7) <sup>a</sup>	--	--	--	--
FC gap ( $> 16.2$ eV)	4(4.1) <sup>b</sup>	1(2.2) <sup>b</sup>	--	--	--	--
c ${}^3\text{B}_1 + \text{C} {}^1\text{B}_1$	--	1.6(3.4) <sup>c</sup>	--	--	0.5(1) <sup>c</sup>	--
d ${}^3\text{A}_1$	--	3.6(4.2) <sup>d</sup>	1.6(1.9) <sup>d</sup>	--	1(1.8) <sup>d</sup>	--
e ${}^3\text{B}_2$ (000)	--	3.5(4.5)	1.6(2.3)	0.03(0.08)	0.9(2.1)	0.9(2.3)
e ${}^3\text{B}_2$ (100)	--	3.9(4.7)	1.8(2.4)	0.04(0.22)	1(2.3)	0.9(2.4)
e ${}^3\text{B}_2$ (200)	--	4.1(4.8)	1.8(2.6)	0.06(0.38)	1(2.4)	--
D ${}^1\text{B}_2$ (000)	--	3.9(4.6)	1.7(2.4)	0.04(0.17)	1(2.2)	--

<sup>a</sup> Acquired at eBE = 16.0 eV; <sup>b</sup> eBE=16.5 eV; <sup>c</sup> eBE=17.7 eV; <sup>d</sup> eBE=18.5 eV.