

## Spectral splitting of the lasing emission of nitrogen ions pumped by 800-nm femtosecond laser pulses: supplement

QI LU,<sup>1</sup> XIANG ZHANG,<sup>1</sup> SANTIAGO LÓPEZ,<sup>2</sup>  HAICHENG MEI,<sup>1</sup> LIANG XU,<sup>1</sup> QINGQING LIANG,<sup>1</sup>  AURÉLIEN HOUARD,<sup>3</sup>  VLADIMIR TIKHONCHUK,<sup>4,5</sup>  ANDRÉ MYSYROWICZ,<sup>3</sup> EDUARDO OLIVA,<sup>2,7</sup>  AND YI LIU<sup>1,6,\*</sup> 

<sup>1</sup>*Shanghai Key Lab of Modern Optical System, University of Shanghai for Science and Technology, 516, Jungong Road, Shanghai 200093, China*

<sup>2</sup>*Instituto de Fusión Nuclear “Guillermo Velarde”, Universidad Politécnica de Madrid, 28006 Madrid, Spain*

<sup>3</sup>*Laboratoire d’Optique Appliquée, ENSTA Paris, Ecole Polytechnique, CNRS, Institut Polytechnique de Paris, 828 Boulevard des Maréchaux, 91762 Palaiseau Cedex, France*

<sup>4</sup>*Centre Lasers Intenses et Applications, University of Bordeaux-CNRS-CEA, 351 Cours de la Libération, 33405 Talence Cedex, France*

<sup>5</sup>*ELI-Beamlines, Institute of Physics, Czech Academy of Sciences, 25241 Dolní Břežany, Czech Republic*

<sup>6</sup>*CAS Center for Excellence in Ultra-Intense Laser Science, Shanghai 201800, China*

<sup>7</sup>*e-mail: eduardo.oliva@upm.es*

\*Corresponding author: [yi.liu@usst.edu.cn](mailto:yi.liu@usst.edu.cn)

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# Supplemental Materials: Spectral splitting of lasing emission of nitrogen ions pumped by 800 nm femtosecond laser pulses

QI LU,<sup>1</sup> XIANG ZHANG,<sup>1</sup> SANTIAGO LÓPEZ,<sup>2</sup> HAICHENG MEI,<sup>1</sup> LIANG XU,<sup>1</sup>  
 QINGQING LIANG,<sup>1</sup> AURÉLIEN HOUARD,<sup>3</sup> VLADIMIR TIKHONCHUK,<sup>4, 5</sup>  
 ANDRÉ MYSYROWICZ,<sup>3</sup> EDUARDO OLIVA,<sup>2, \*</sup> YI LIU<sup>1,6, \*</sup>

<sup>1</sup>*Shanghai Key Lab of Modern Optical System, University of Shanghai for Science and Technology, 516, Jungong Road, Shanghai 200093, China*

<sup>2</sup>*Instituto de Fusión Nuclear “Guillermo Velarde”, Universidad Politécnica de Madrid, 28006 Madrid, Spain*

<sup>3</sup>*Laboratoire d’Optique Appliquée, ENSTA Paris, Ecole Polytechnique, CNRS, Institut Polytechnique de Paris, 828 Boulevard des Maréchaux, 91762 Palaiseau cedex, France*

<sup>4</sup>*Centre Lasers Intenses et Applications, University of Bordeaux-CNRS-CEA, 351 Cours de la Libération, 33405 Talence cedex, France*

<sup>5</sup>*ELI-Beamlines, Institute of Physics, Czech Academy of Sciences, 25241 Dolní Břežany, Czech Republic*

<sup>6</sup>*CAS Center for Excellence in Ultra-intense Laser Science, Shanghai, 201800, China*

\*Corresponding author: <mailto:eduardo.oliva@upm.es>; [yi.liu@usst.edu.cn](mailto:yi.liu@usst.edu.cn)

TABLE S1. Transition dipole elements for the  $A^2\Pi_u - X^2\Sigma_g^+$  and  $B^2\Sigma_u^+ - X^2\Sigma_g^+$  transitions of the nitrogen molecular ion (in atomic units). The absolute values are taken from the measured Einstein coefficients in Ref. [19] with the signs obtained from the solution of the nonlinear Schrödinger equation.

$A^2\Pi_u$	$X^2\Sigma_g^+$	$v = 0$	$v = 1$	$v = 2$
	$v' = 0$	0.249	-0.213	0.114
	$v' = 1$	0.211	0.066	-0.201
	$v' = 2$	0.138	0.176	-0.050
	$v' = 3$	0.081	0.167	0.105
	$v' = 4$	0.044	0.122	0.157

$B^2\Pi_u$	$X^2\Sigma_g^+$	$v = 0$	$v = 1$	$v = 2$
	$v' = 0$	0.818	0.533	0.282
	$v' = 1$	0.509	-0.483	-0.564
	$v' = 2$	0.178	-0.591	0.230
	$v' = 3$	-0.033	0.269	-0.595
	$v' = 4$	0.0005	0.054	-0.336