

## Supporting Information

### Molecular emissions in sonoluminescence spectra of water sonicated under Ar-based gas mixtures

R. Pflieger<sup>1</sup>, E. Fayard<sup>1</sup>, C. Noel<sup>2</sup>, S.I. Nikitenko<sup>1</sup> and T. Belmonte<sup>2</sup>

<sup>1</sup>*Institut de Chimie Séparative de Marcoule, ICSM UMR 5257 – CEA, CNRS, Univ Montpellier, ENSCM, Bagnols-sur-Cèze Cedex, France*

<sup>2</sup>*Université de Lorraine, Institut Jean Lamour, UMR CNRS 7198, Nancy, France*

Molecular emissions observed in SL spectra were simulated whenever possible using Specair software[7], after subtraction of a baseline.

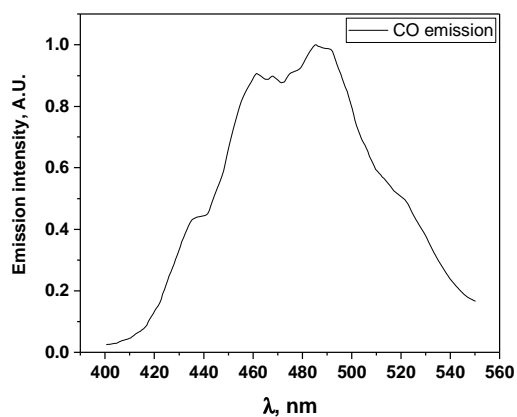


Fig. 1SI: Specair simulation of CO (X-X) emission for  $T_v = 10000$  K,  $T_r = 10000$  K and  $p = 1000$  bar.

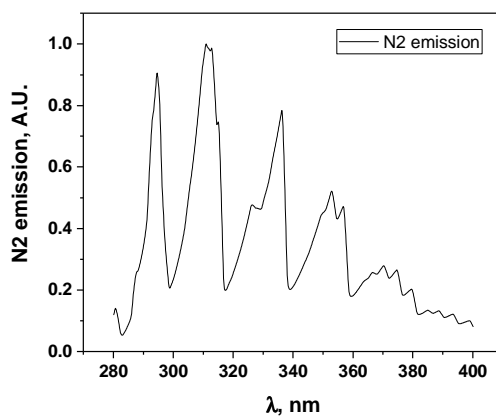
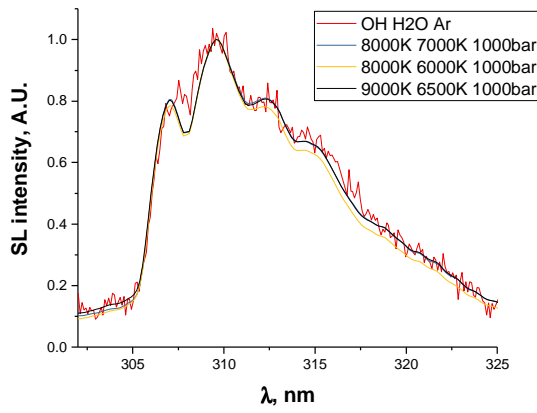


Fig. 2SI: Specair simulation of N<sub>2</sub> (C-B) emission for  $T_v = 10000$  K,  $T_r = 10000$  K and  $p = 1000$  bar.

a)



b)

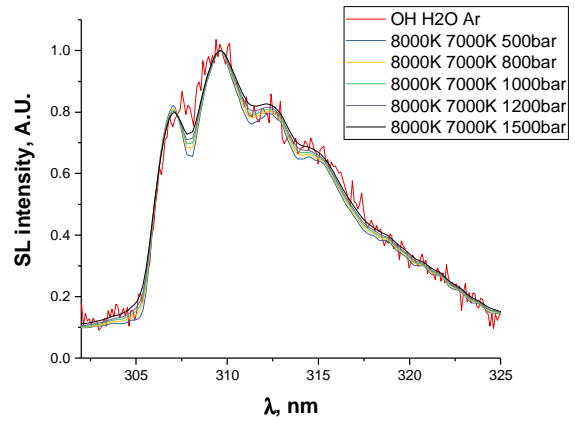


Fig. 3SI: Comparison of the experimental OH (A-X) emission under Ar with some Specair simulations. a) temperature variations; b) pressure variations. (The linear regression to create a baseline was performed in the range 304-324 nm.)

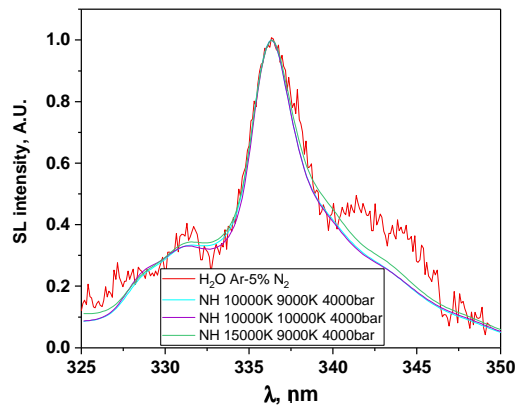


Fig. 4SI: Comparison of the experimental NH (A-X) emission (after subtraction of a linear baseline in the range 325-345 nm) under Ar-5%N<sub>2</sub> with some Specair simulations.

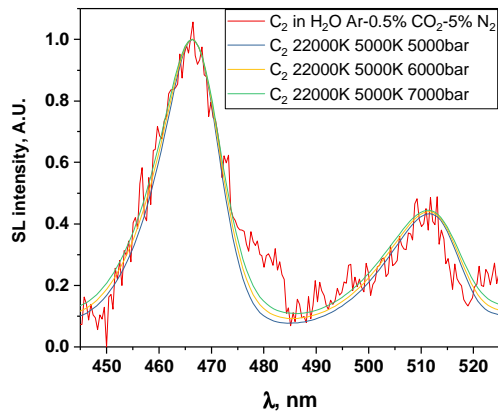


Fig. 5SI: Comparison of the experimental  $C_2$  Swan emission under  $Ar-0.5\%CO_2-5\%N_2$  with some Specair simulations.

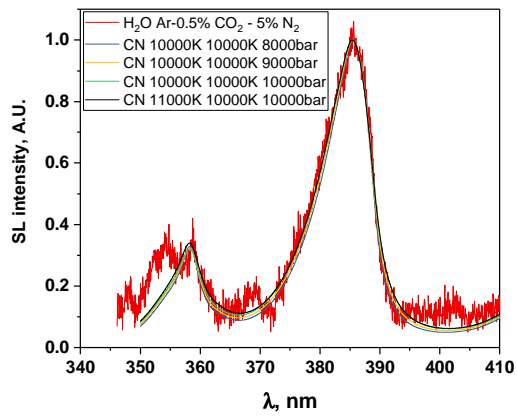


Fig. 6SI: Comparison of the experimental CN violet emission under  $Ar-0.5\%CO_2-5\%N_2$  with some Specair simulations.