

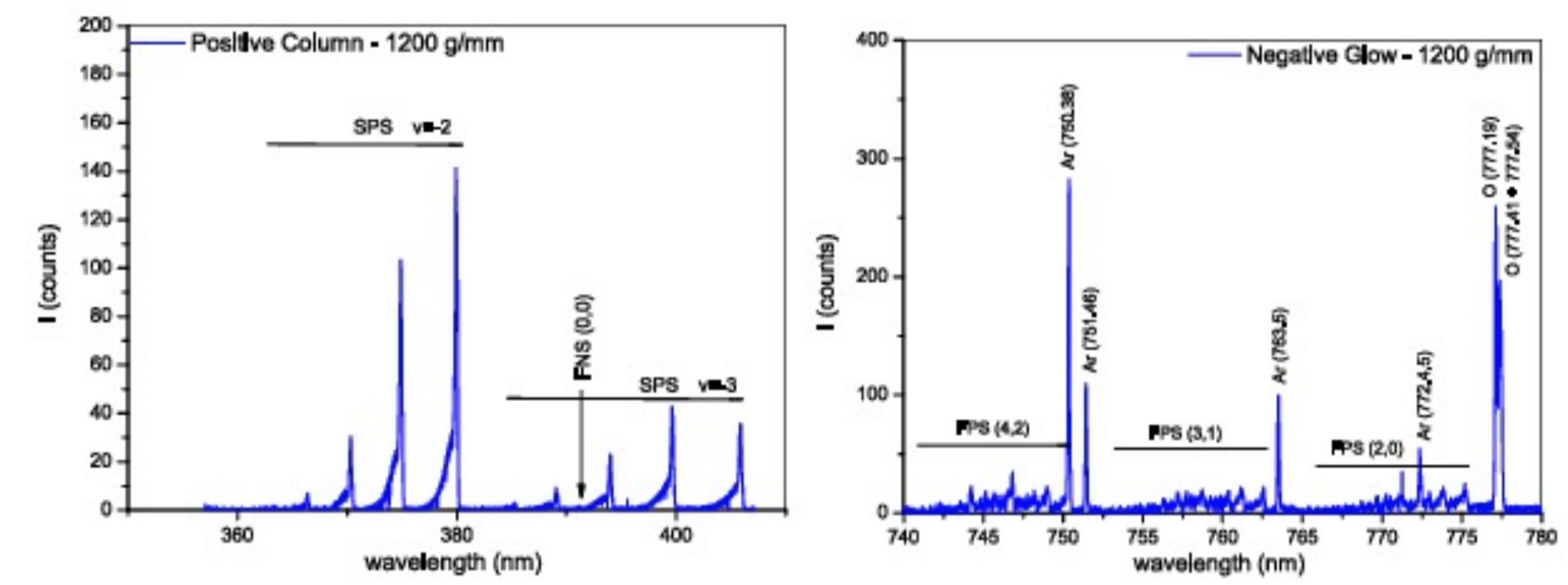


O. De Pascale, M. Ambrico, P.F. Ambrico, I. Armenise, D. Bruno, G. Cicala, G. Colonna, G. Dilecce, F. Esposito, V. Laporta, A. Laricchiuta, P. Minelli, O. Pezzi, L.D. Pietanza, F. Pucci, M. Rutigliano, G.S. Senesi, L. Sorriso Valvo, F. Taccogna

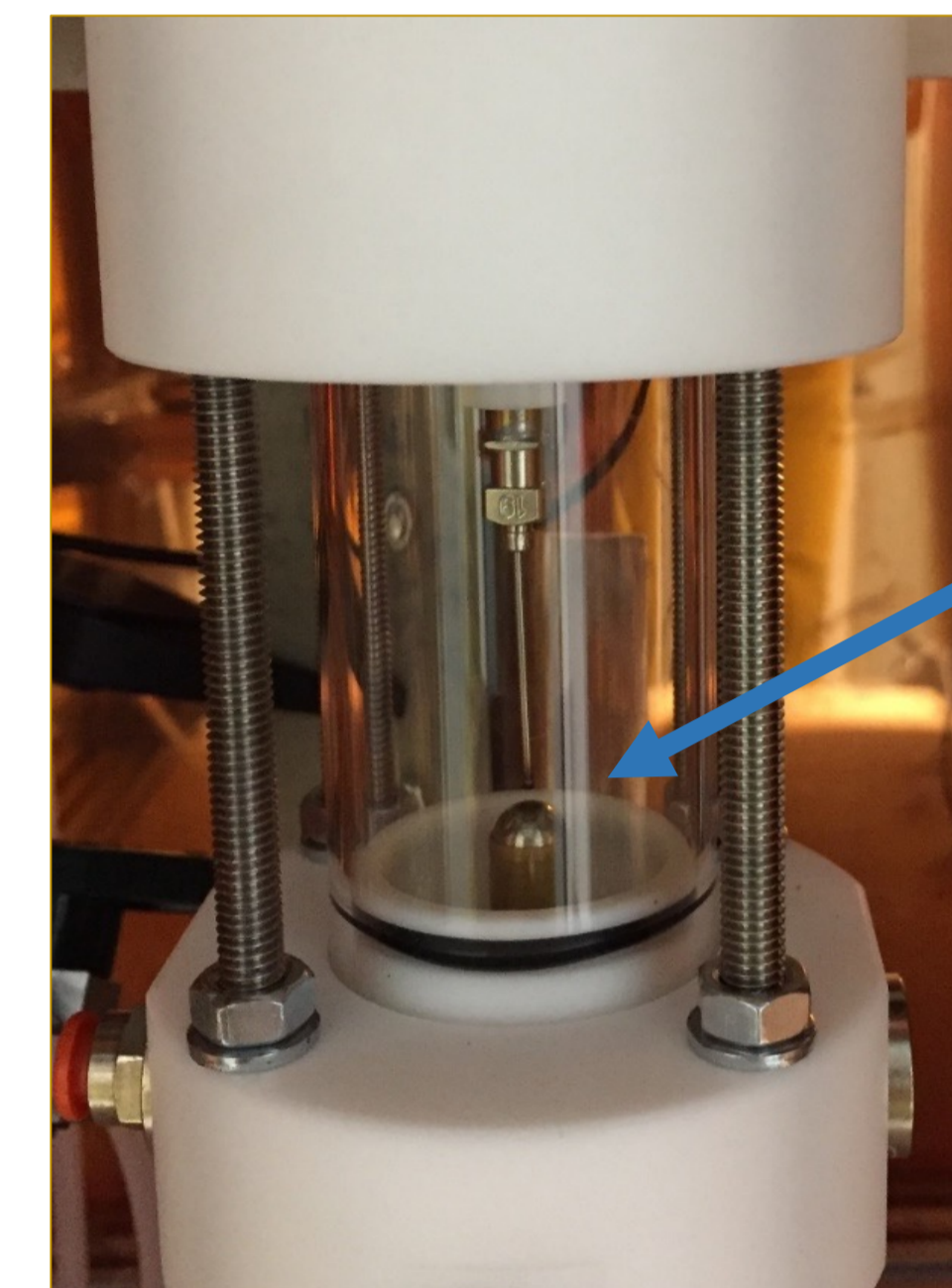


PLASMI PER L'AEROSPAZIO

- Analisi spettrografica dell'emissione ottica del motore al plasma
- Realizzazione catodi neutralizzatori su base diamante per motori al plasma con MWPECVD
- Modelling Propulsione elettrica
- Modelling Orologio atomico per GPS
- Modelling Plasmi di rientro da atmosfere planetarie



Collaborazioni attive: Distretto Tecnologico Aerospaziale (DTA); LEONARDO Electronics; ENEA
 Progetti: PON MIUR Apulia Space; Close to the Earth; EU FPVII PHYS4ENTRY

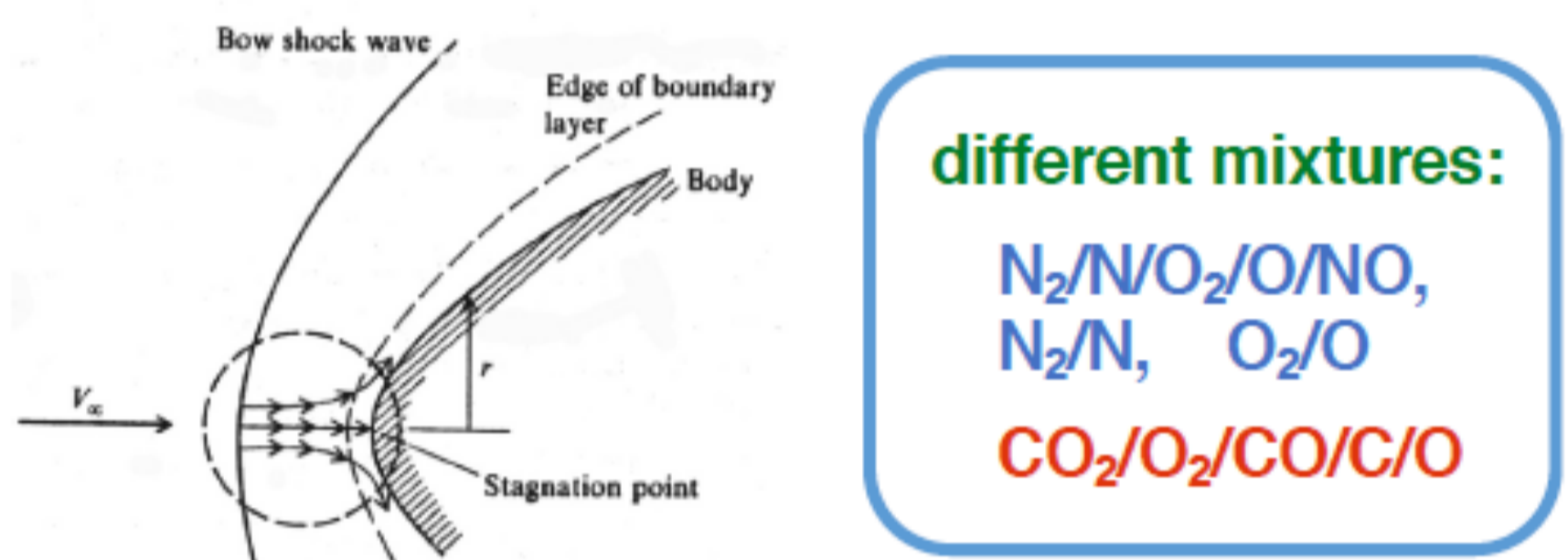


30 wt % Co-Cu/Al₂O₃
 Co:Cu=1:1, 2.5 mm beads

PLASMI DI NON-EQUILIBRIO

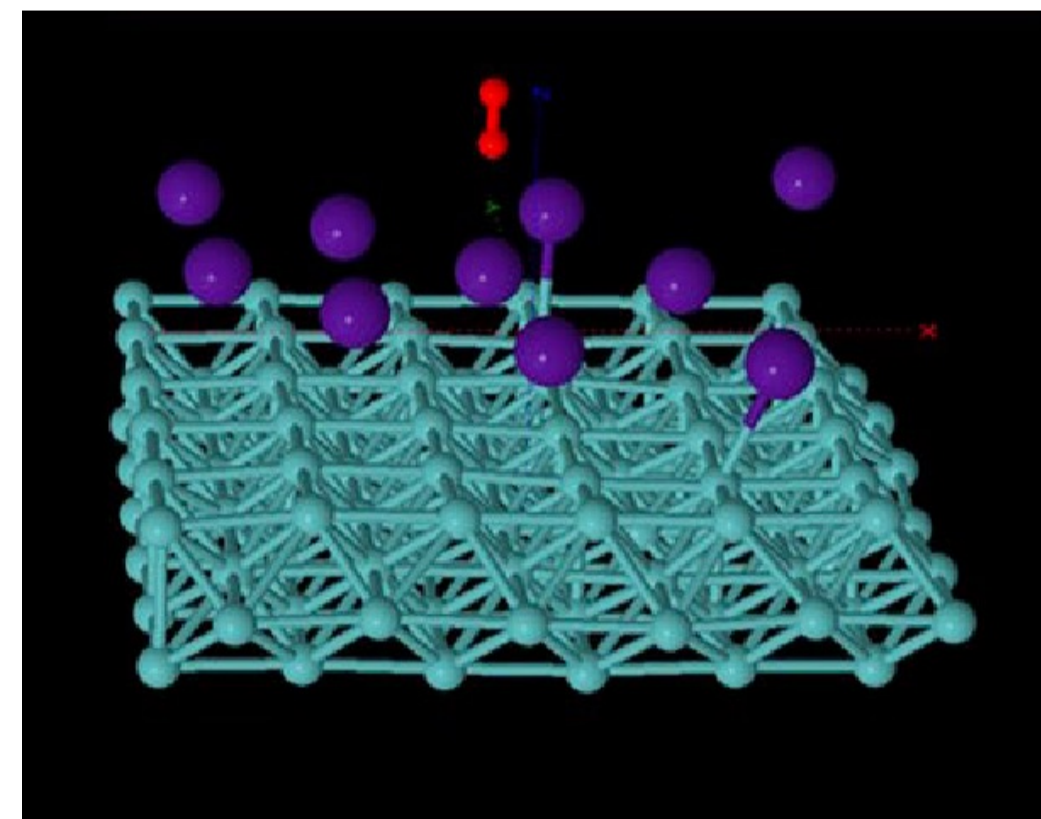
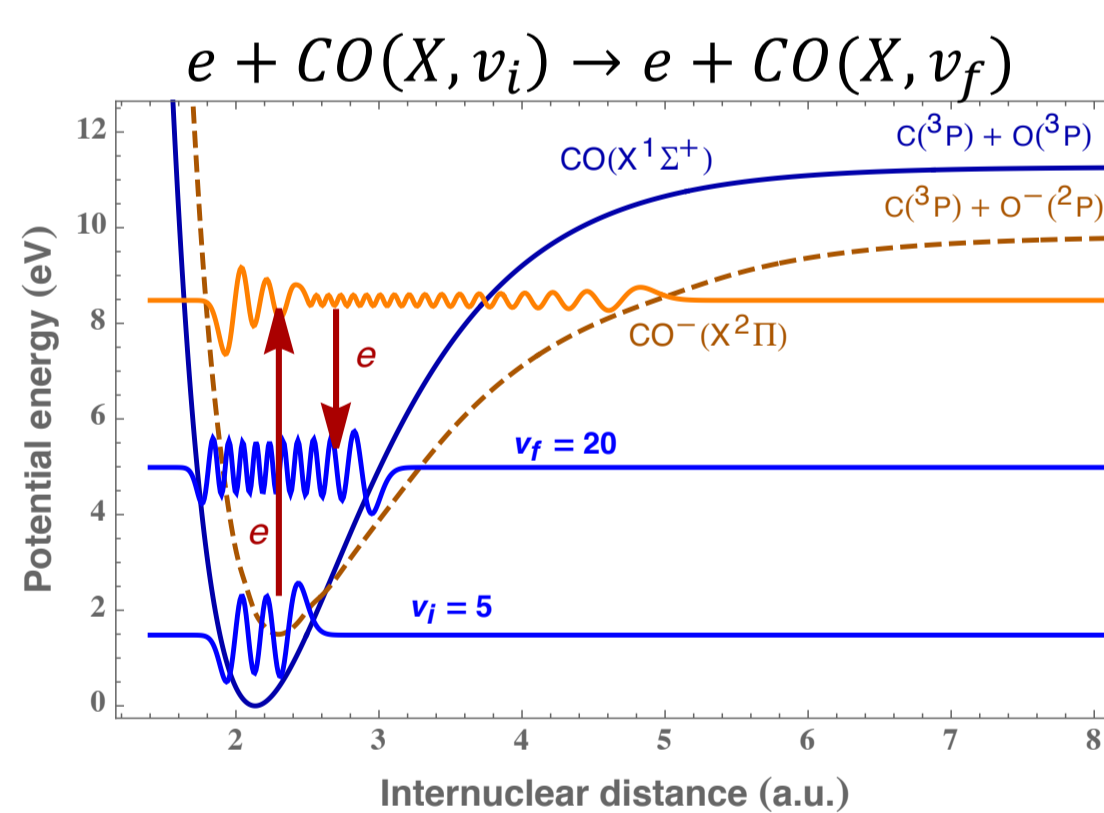
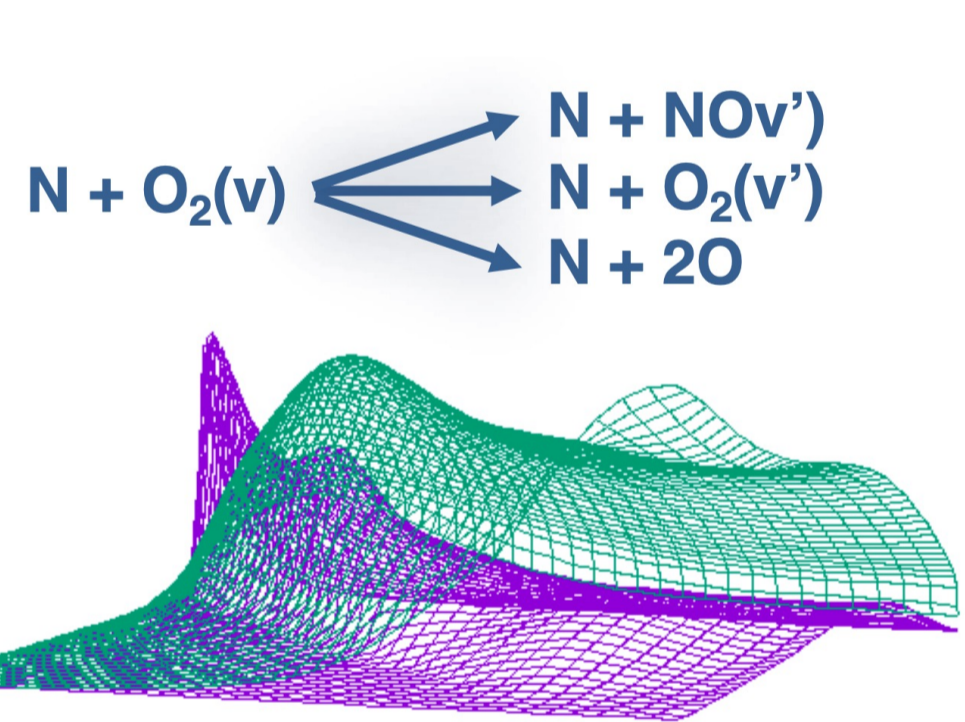
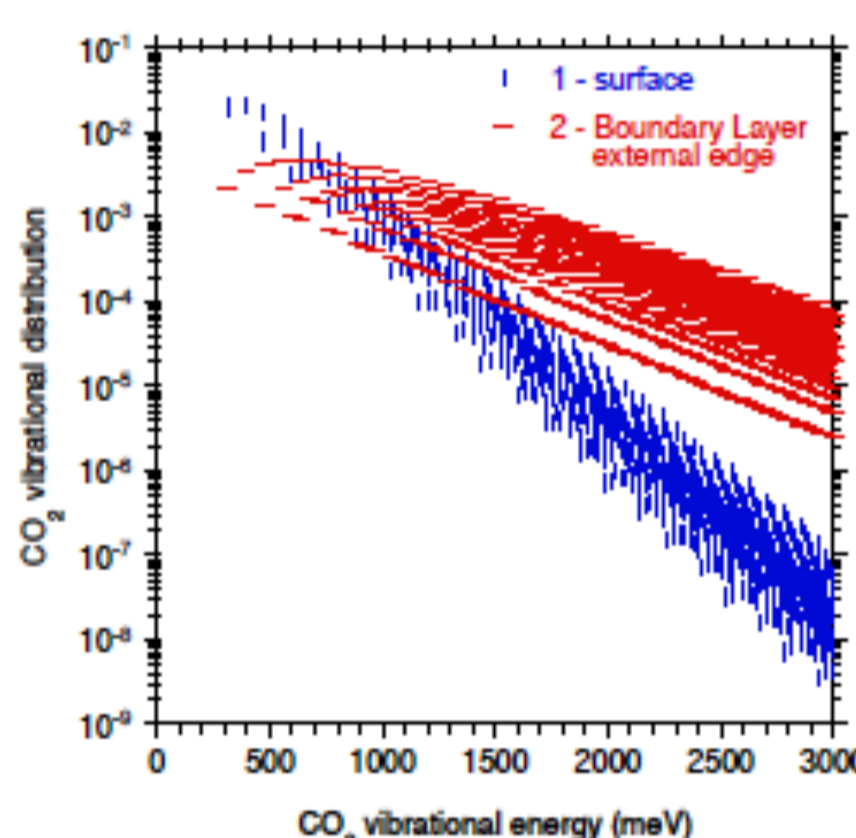
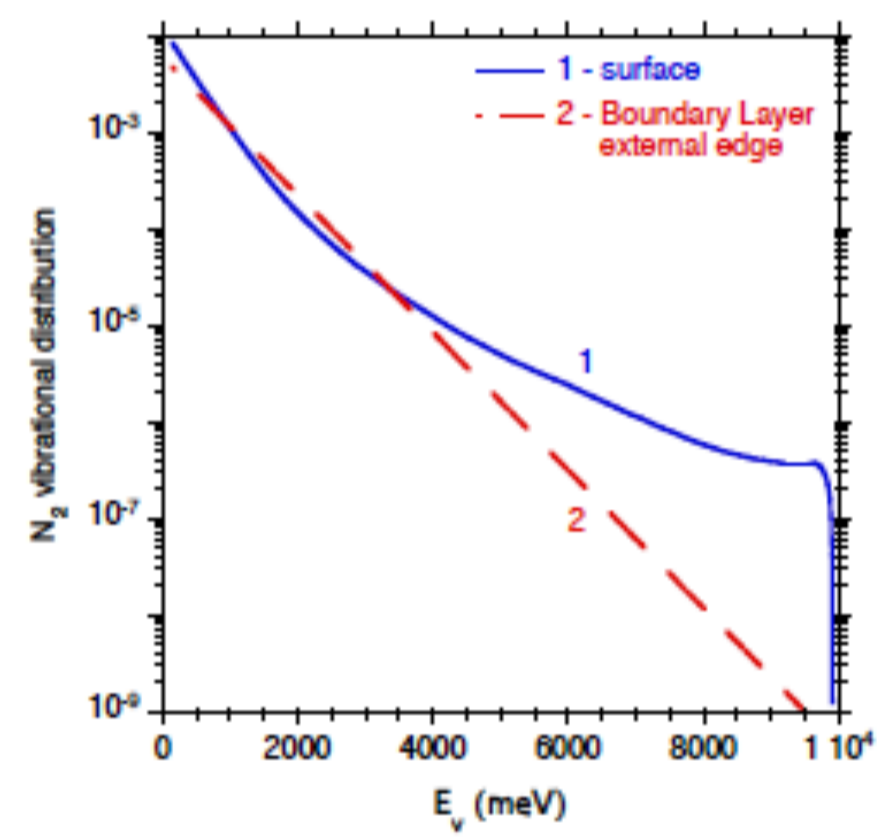
- Calcoli dei processi elementari nel volume del plasma e interazione plasma-parete
- Modelli cinetici Stato-a-Stato
- Modelli a particelle per la simulazione dell'accoppiamento plasma-gas-superficie nella regione del divertor

Collaborazioni attive: ITER, DTT, JRC ENI-CNR fusione
 Progetti: PON MIUR Apulia Space; EU FPVII PHYS4ENTRY



different mixtures:

N₂/NO₂/O/NO,
 N₂/N, O₂/O
 CO₂/O₂/CO/O



PLASMI TERMICI

- Modelling proprietà termodinamiche e chimiche
- LIBS e applicazioni ambientali

Collaborazioni attive: EquilTheta
 Progetti: PRIN 2021 Underlandscape



Plasma Agriculture

Seeds Treatment

↓

Germination/growth **Seeds Sanitation**

Unreated

Pulse Modulated AC HV=5kHz @ 500 Hz rep. rate, duty cycle 20%. Max treatment time 15 minutes 13 mJ x 500 cycles (6.5 W, 1 hr ->6.5 Wh).

O₃ produced (typ 200-300 ppm, production yield of 70-80 g/kWh) exceeded nitrogen oxide products (typ. 30-40 ppm of NO₂ and 2-3 ppm of N₂O)

Current discharge surface treatment of 2.5 g. 1kg of Seeds treatment cost about 0.65 kWh.

APPLICAZIONI AVANZATE DI PLASMI FREDDI

- Combustione assistita da plasma
- Plasma Agriculture

Progetti: MISE Protection