

AU Staicu-Casagrande, EM, Nzeyimana, T, Naji, EA, de Ruelle, N, Fabre, B, Le Padellec, A, Urbain, X

TI Abstraction and insertion mechanisms in reactive collisions of H-2(+) and D-2(+) with O-  
SO EUROPEAN PHYSICAL JOURNAL D

LA English

DT Article

ID EXCITED-STATES; DISSOCIATIVE RECOMBINATION; ULTRAVIOLET EMISSION;  
QUANTUM DYNAMICS; GASEOUS IONS; MERGED BEAM; H2O+; LIFETIMES; ENERGY;  
SCATTERING

AB Integral cross-sections were measured for the associative ionisation and reactive ionisation in collisions of H-2(+) and D-2(+) with O- by means of a merged-beam set-up operating with keV beams. The magnitude of the reactive cross-sections is quite large (10(-14) cm(2) at 10 meV), and surpasses the associative ionisation by an order of magnitude. The observed ratio is discussed in terms of insertion and abstraction mechanisms that prevail in the case of atom-diatom inelastic collisions. These measurements may be relevant to the understanding of some astrophysical objects such as the comets, where the presence of the water cation was highlighted.

C1 Univ Catholique Louvain, Unite FYAM, Dept Phys, B-1348 Louvain, Belgium., Univ Toulouse 3, LCAR, UMR 5589, F-31062 Toulouse 4, France.

RP Staicu-Casagrande, EM, Univ Catholique Louvain, Unite FYAM, Dept Phys, B-1348 Louvain, Belgium.

EM [urbain@fyam.ucl.ac.be](mailto:urbain@fyam.ucl.ac.be)

NR 34

TC 0

PU SPRINGER

PI NEW YORK

PA 233 SPRING STREET, NEW YORK, NY 10013 USA

SN 1434-6060

J9 EUR PHYS J D

JI Eur. Phys. J. D

PD DEC

PY 2004

VL 31

IS 3

BP 469

EP 475

PG 7

SC Physics, Atomic, Molecular & Chemical

GA 877YH

UT ISI:000225611500003