

# **Light Element Atom, Molecule and Radical Behaviour in the Divertor and Edge Plasma Regions**

**International Atomic Energy Agency (IAEA)  
Coordinated Research Project from 2009-2013**

**Journal of Physics: Conference Series Volume 576**

**Vienna, Austria**

**Held on various dates between 2009-2013**

**ISBN: 978-1-63439-909-8  
ISSN: 1742-6588**

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© by the Institute of Physics  
All rights reserved.

Printed by Curran Associates, Inc. (2015)

For permission requests, please contact the Institute of Physics  
at the address below.

Institute of Physics  
Dirac House, Temple Back  
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481  
Fax: 44 1 17 920 0979

[techtracking@iop.org](mailto:techtracking@iop.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2634  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

<b>ELECTRON COLLISIONS WITH BERYLLIUM AND ITS IONS</b> .....	1
<i>I Bray, D V Fursa</i>	
<b>CALCULATION OF TOTAL CROSS SECTIONS FOR ELECTRON CAPTURE IN COLLISIONS OF CARBON IONS WITH H(D,T)(IS)</b> .....	8
<i>L F Errea, C Illescas, A Jorge, L Méndez, I Rabadán, J Suárez</i>	
<b>REACTIVE COLLISIONS INVOLVING THE BEH MOLECULAR SYSTEM</b> .....	24
<i>Å Larson, J B Roos, H Hedberg, A E Orel</i>	
<b>GENERALIZED COLLISIONAL RADIATIVE MODEL FOR LIGHT ELEMENTS: C: DATA FOR THE B ISONUCLEAR SEQUENCE</b> .....	33
<i>S D Loch, C P Ballance, M S Pindzola, D C Griffin, J P Colgan, N R Badnell, M G O'Mullane</i>	
<b>ELECTRONIC AND PHOTONIC REACTIVE COLLISIONS IN EDGE FUSION PLASMA AND INTERSTELLAR SPACE: APPLICATION TO H<sub>2</sub> AND BEH SYSTEMS</b> .....	52
<i>J Zs Mezei, S Niyonzima, D Backodissa, N Pop, F O Waffeu Tamo, K Chakrabarti, O Motapon, A Wolf, J Robert, O Dulieu, Å Larson, A E Orel, A Bultel, I F Schneider</i>	
<b>POLYATOMIC IONS, BRANCHING RATIOS AND HOT MOLECULES</b> .....	85
<i>J B A Mitchell</i>	
<b>NIST PROGRAM OF SPECTROSCOPIC DATA FOR LIGHT ELEMENTS OF FUSION INTEREST</b> .....	92
<i>J Reader, A Kramida, Yu Ralchenko, W Wiese, J Fuhr</i>	
<b>EXCITATION OF THE N=2 LEVELS OF HYDROGEN BY PROTON IMPACT FOR HYDROGEN BEAM DIAGNOSTICS</b> .....	206
<i>D R Schultz, S Y Ovchinnikov</i>	
<b>STATE-SELECTIVE CHARGE TRANSFER CROSS SECTIONS FOR LIGHT ION IMPACT OF ATOMIC HYDROGEN</b> .....	220
<i>D R Schultz, P C Stancil, C C Havener</i>	
<b>CONTRIBUTION TO THE THEORETICAL INVESTIGATION OF ELECTRON AND PHOTON INTERACTION WITH CARBON ATOM AND ITS IONS</b> .....	227
<i>V Stancalie</i>	
<b>KINETIC ENERGY DISTRIBUTION FOR THE IONIZATION AND DISSOCIATION PROCESS OF C<sub>2</sub>H<sub>4</sub> BY ELECTRON IMPACT</b> .....	242
<i>X Wang, Z Chen, B Wei, R Hutton, Y Zou</i>	
<b>CHARGE TRANSFER IN COLLISIONS OF BE<sup>Q+</sup> (Q=2-4) AND B<sup>Q+</sup> (Q=3-5) IONS WITH H</b> .....	248
<i>Y Wu, L Liu, C H Liu, Y Z Qu, J G Wang, R K Janev</i>	
<b>Author Index</b>	