

# Scientific Publications

by Friedrich Aumayr

## Overview

A.	Journal articles (peer-reviewed)	222
B.	Edited books, book chapters, and invited contributions to conferences	40
C.	Contributions in conference proceedings and other publications	192
	<b>Total number of publications</b>	<b>454</b>

Publications are listed in chronological order below. For up-to-date ISI statistics, including citations and Hirsch-index, visit ISI ResearcherID online at <http://www.researcherid.com/rid/A-3920-2009>.

Note: The [digital object identifier \(doi\)](#) – URLs below provides a clickable link to the paper at the publisher.

Some PDF-files are also available at <http://www.iap.tuwien.ac.at/www/atomic/publications/list>.

## A. Journal articles (peer-reviewed)

- A01 **F. Aumayr**, P. Bauer and D. Semrad  
*Accuracy of stopping cross section determination from RBS-spectra by Wartens' method*  
 Nuclear Instruments and Methods **212** (1983) 529 - 532  
[http://dx.doi.org/10.1016/0167-5087\(83\)90738-X](http://dx.doi.org/10.1016/0167-5087(83)90738-X)
- A02 D. Semrad, P. Bauer, **F. Aumayr**, P. Huber and W. Obermann  
*Search for an influence of the measuring method on stopping cross section data near the maximum*  
 Nuclear Instruments and Methods **218** (1983) 811 - 816  
[http://dx.doi.org/10.1016/0167-5087\(83\)91088-8](http://dx.doi.org/10.1016/0167-5087(83)91088-8)
- A03 P. Bauer, **F. Aumayr**, D. Semrad and B.M.U. Scherzer  
*Measurement of the stopping cross section for protons in copper by backscattering using various methods for foil-thickness determination*  
 Nuclear Instruments and Methods B **1** (1984) 1 - 8  
[http://dx.doi.org/10.1016/0168-583X\(84\)90469-5](http://dx.doi.org/10.1016/0168-583X(84)90469-5)
- A04 **F. Aumayr**, M. Fehringer and H. Winter  
*Inelastic  $H^+$  - Li(2s) collisions (2-20 keV): I. Experimental methods and Li(2p) excitation*  
 Journal of Physics B: At.Mol.Phys. **17** (1984) 4185 - 4199  
<http://dx.doi.org/10.1088/0022-3700/17/20/017>
- A05 **F. Aumayr**, M. Fehringer and H. Winter  
*Inelastic  $H^+$  - Li(2s) collisions (2-20 keV): II. Electron capture into H(2p)- and H(3,l) subshells*  
 Journal of Physics B: At.Mol.Phys. **17** (1984) 4201 - 4211  
<http://dx.doi.org/10.1088/0022-3700/17/20/018>
- A06 **F. Aumayr** and H. Winter  
*Total single electron capture cross sections for impact of  $H^+$ ,  $H_2^+$ ,  $He^+$  and  $Ne^+$  (2 - 20 keV) on Li*  
 Physical Review A **31** (1985) 67 - 71  
<http://dx.doi.org/10.1103/PhysRevA.31.67>
- A07 **F. Aumayr**, G. Lakits, W. Husinsky and H. Winter  
*Inelastic  $H^+$  - Li(2s) collisions (2-20 keV): III. Electron capture into the H(2s) subshell*  
 Journal of Physics B: At.Mol.Phys. **18** (1985) 2493 - 2501  
<http://dx.doi.org/10.1088/0022-3700/18/12/024>

- A08 **F. Aumayr** and H. Winter  
*Plasmadiagnostik mit Lithiumatomstrahl aktivierter Umladungsspektroskopie*  
Annalen der Physik **497** (1985) 228 - 238  
<http://dx.doi.org/10.1002/andp.19854970304>
- A09 **F. Aumayr** and H. Winter  
*Excitation by impact of He<sup>+</sup> (2 - 20 keV) on Li(2s)*  
Journal of Physics B: At.Mol.Phys. **18** (1985) L741 - L746  
<http://dx.doi.org/10.1088/0022-3700/18/21/004>
- A10 **F. Aumayr**, G. Lakits and H. Winter  
*Electron capture from Li(2s) by doubly charged ions (5 - 40 keV)*  
Physical Review A **33** (1986) 846 - 850  
<http://dx.doi.org/10.1103/PhysRevA.33.846>
- A11 **F. Aumayr**, G. Lakits and H. Winter  
*Primary ion state conservation in electron capture from Li(2s) by singly charged ions*  
Physics Letters A **114** (1986) 81 - 83  
[http://dx.doi.org/10.1016/0375-9601\(86\)90484-6](http://dx.doi.org/10.1016/0375-9601(86)90484-6)
- A12 **F. Aumayr**, G. Lakits and H. Winter  
*Charge transfer and target excitation in H<sup>+</sup> - Na(3s) collisions (2 - 20 keV)*  
Journal of Physics B: At.Mol.Phys. **20** (1987) 2025 - 2030  
<http://dx.doi.org/10.1088/0022-3700/20/9/015>
- A13 **F. Aumayr**, G. Lakits and H. Winter  
*Electron capture and target excitation in slow ion - alkali atom collisions: A systematic study*  
Zeitschrift für Physik D: Atoms, Molecules and Clusters **6** (1987) 145 - 153  
<http://dx.doi.org/10.1007/BF01384601>
- A14 **F. Aumayr** and H. Winter  
*L<sub>α</sub> - emission in H<sup>+</sup> - Na collisions (1 - 20 keV)*  
Journal of Physics B: At. Mol. Phys. **20** (1987) L803 - L807  
<http://dx.doi.org/10.1088/0022-3700/20/23/006>
- A15 G. Lakits, **F. Aumayr** and H. Winter  
*Statistics of electron emission from metal surfaces bombarded by ions with different charge states*  
Journal de Physique C1 - **50** (1989) 533 - 539  
<http://dx.doi.org/10.1051/jphyscol:1989156>
- A16 **F. Aumayr**, J. Schweinzer and H. Winter  
*State - selective electron capture in He<sup>2+</sup> - Li collisions studied jointly by photon - and translational energy spectroscopy*  
Journal of Physics B: At.Mol.Opt.Phys. **22** (1989) 1027 - 1034  
<http://dx.doi.org/10.1088/0953-4075/22/7/011>
- A17 A. Pospieszczyk, **F. Aumayr**, H.L. Bay, E. Hintz, P. Leismann, Y.T. Lie, G.G. Ross, D. Rusbüldt, R.P. Schorn, B. Schweer and H. Winter  
*Recent developments for plasma edge diagnostics using atomic beams*  
Journal of Nuclear Materials **162-164** (1989) 574 - 581  
[http://dx.doi.org/10.1016/0022-3115\(89\)90330-9](http://dx.doi.org/10.1016/0022-3115(89)90330-9)
- A18 G. Lakits, **F. Aumayr** and H. Winter  
*Statistics of potential electron emission*  
Radiation Effects and Defects in Solids **109** (1989) 129 - 136  
<http://dx.doi.org/10.1080/10420158908220528>

- A19 G. Lakits, **F. Aumayr** and H. Winter  
*Statistics of ion - induced electron emission from a clean metal surface*  
Review of Scientific Instruments **60** (1989) 3151 - 3159  
<http://dx.doi.org/10.1063/1.1140546>
- A20 G. Lakits, **F. Aumayr** and H. Winter  
*On the statistics of heavy particle - induced kinetic electron emission from a clean metal surface*  
Physics Letters A **139** (1989) 395 - 398  
[http://dx.doi.org/10.1016/0375-9601\(89\)90586-0](http://dx.doi.org/10.1016/0375-9601(89)90586-0)
- A21 H.B. Gilbody, A. Salin, **F. Aumayr**, A Barany, D.S. Belkic, R. Hoekstra, R.K. Janev, Y. Nakai,  
R. D. Rivarola, H. Tawara and T. Watanabe  
*Review of the data base for collisions of C<sup>q+</sup> and O<sup>q+</sup> ions with H, H<sub>2</sub> and He*  
Physica Scripta T **28** (1989) 8 - 9  
<http://dx.doi.org/10.1088/0031-8949/1989/T28/002>
- A22 **F. Aumayr** and H. Winter  
*Experimental investigations on electron capture in the presence of metastable ion beam fractions*  
Physica Scripta T **28** (1989) 96 - 100  
<http://dx.doi.org/10.1088/0031-8949/1989/T28/017>
- A23 **F. Aumayr**, J. Hung and S. Suckewer  
*Quenching of Einstein's A-coefficients by photons*  
Physical Review Letters **63** (1989) 1215 - 1218  
<http://dx.doi.org/10.1103/PhysRevLett.63.1215>
- A24 G. Lakits, **F. Aumayr** and H. Winter  
*Electronic effects in slow heavy particle - induced electron emission from a clean metal surface*  
Europhysics Letters **10** (1989) 679 - 685  
<http://dx.doi.org/10.1209/0295-5075/10/7/013>
- A25 G. Lakits, **F. Aumayr**, M. Heim and H. Winter  
*Threshold of ion-induced kinetic electron emission from a clean metal surface*  
Physical Review A **42** (1990) 5780 - 5783  
<http://dx.doi.org/10.1103/PhysRevA.42.5780>
- A26 M. Gieler, **F. Aumayr**, P. Ziegelwanger, H. Winter and W. Fritsch  
*L<sub>α</sub> emission from (0.1 - 20 keV) H<sup>+</sup> impact on Li, Na, K*  
Physical Review A **43** (1991) 127 - 133  
<http://dx.doi.org/10.1103/PhysRevA.43.127>
- A27 R.P. Schorn, E. Hintz, D. Rusbüldt, **F. Aumayr**, M. Schneider, E. Unterreiter and H. Winter  
*Absolute concentrations of light impurity ions in tokamak discharges measured with Lithium beam activated charge exchange spectroscopy*  
Applied Physics B **52** (1991) 71 - 78  
<http://dx.doi.org/10.1007/BF00357658>
- A28 **F. Aumayr**, G. Lakits and H. Winter  
*On the measurement of statistics for particle - induced electron emission from a clean metal surface*  
Applied Surface Science **47** (1991) 139 - 147  
[http://dx.doi.org/10.1016/0169-4332\(91\)90028-l](http://dx.doi.org/10.1016/0169-4332(91)90028-l)
- A29 M. Gieler, P. Ziegelwanger, **F. Aumayr**, H. Winter and W. Fritsch  
*Experimental and theoretical investigation of electron capture and target excitation in (1 - 20 keV) H<sup>+</sup> - K collisions*  
Journal of Physics B: At.Mol.Opt.Phys. **24** (1991) 647 - 655  
<http://dx.doi.org/10.1088/0953-4075/24/3/020>

- A30 H. Winter, **F. Aumayr** and G. Lakits  
*Recent advances in understanding particle induced electron emission from metal surfaces*  
Nuclear Instruments and Methods in Physics Research B **58** (1991) 301 - 308  
[http://dx.doi.org/10.1016/0168-583X\(91\)95859-C](http://dx.doi.org/10.1016/0168-583X(91)95859-C)
- A31 E. Unterreiter, **F. Aumayr** and H. Winter  
*Multicharged ion-atom collisions - application for Tokamak edge plasma physics*  
Zeitschrift für Physik D: Atoms Molecules and Clusters **21** Supp. 1 (1991) S167 - S168  
<http://dx.doi.org/10.1007/BF01426277>
- A32 M. Gieler, **F. Aumayr**, M. Hütteneder and H. Winter  
*Laser enhanced  $L_{\alpha}$  emission from (50 eV - 15 keV)  $H^+$  - Na collisions*  
Journal of Physics B: At.Mol.Opt.Phys. **24** (1991) 4419 - 4429  
<http://dx.doi.org/10.1088/0953-4075/24/20/012>
- A33 **F. Aumayr**, M. Gieler, E. Unterreiter and H. Winter  
*State - selective electron capture by  $He^{2+}$  ions from laser - excited  $Na^*(3p)$*   
Europhysics Letters **16** (1991) 557 - 561  
<http://dx.doi.org/10.1209/0295-5075/16/6/008>
- A34 **F. Aumayr**, W. Lee, C.H. Skinner and S. Suckewer  
*Quenching of Einstein - coefficients by photons*  
Journal of Physics B: At.Mol.Opt.Phys. **24** (1991) 4489 - 4504  
<http://dx.doi.org/10.1088/0953-4075/24/21/005>
- A35 R.P. Schorn, E. Wolfrum, **F. Aumayr**, E. Hintz, D. Rusbüldt and H. Winter  
*Radial temperature distributions of  $C^{6+}$  - ions in the TEXTOR edge plasma measured with Li-CXS*  
Nuclear Fusion **32** (1992) 351 - 359  
<http://dx.doi.org/10.1088/0029-5515/32/3/I01>
- A36 **F. Aumayr**, M. Gieler, J. Schweinzer, H. Winter and J.P. Hansen  
*Electron capture in  $He^{2+}$  collisions with aligned  $Na^*(3p)$  atoms*  
Physical Review Letters **68** (1992) 3277 - 3280  
<http://dx.doi.org/10.1103/PhysRevLett.68.3277>
- A37 J. Schweinzer, E. Wolfrum, **F. Aumayr**, M. Pöckl, H. Winter, R.P. Schorn, E. Hintz and A. Unterreiter  
*Reconstruction of plasma edge density profiles from  $LiI(2s-2p)$  emission profiles*  
Plasma Physics and Controlled Fusion **34** (1992) 1173 - 1183  
<http://dx.doi.org/10.1088/0741-3335/34/7/001>
- A38 K.Ohya, **F. Aumayr** and H. Winter  
*Statistics of ion - induced kinetic electron emission - a comparison between experimental and Monte Carlo - simulated results*  
Physical Review B **46** (1992) 3101 - 3104  
<http://dx.doi.org/10.1103/PhysRevB.46.3101>
- A39 H. Kurz, K. Töglhofer, HP. Winter, **F. Aumayr** and R. Mann  
*Electron emission from slow hollow atoms at a clean metal surface*  
Physical Review Letters **69** (1992) 1140 - 1143  
<http://dx.doi.org/10.1103/PhysRevLett.69.1140>
- A40 **F. Aumayr**, R.P. Schorn, M. Pöckl, J. Schweinzer, E. Wolfrum, K. McCormick, E. Hintz and H. Winter  
*Tokamak edge plasma densities measured by means of active Lithium beam diagnostics*  
Journal of Nuclear Materials **196-198** (1992) 928 - 932  
[http://dx.doi.org/10.1016/S0022-3115\(06\)80170-4](http://dx.doi.org/10.1016/S0022-3115(06)80170-4)
- A41 M. Gieler, **F. Aumayr** and L. Windholz  
*Coherent population trapping probed by charge exchange reactions*  
Physical Review Letters **69** (1992) 3452 - 3454  
<http://dx.doi.org/10.1103/PhysRevLett.69.3452>

- A42 K. Töglhofer, **F. Aumayr** and HP. Winter  
*Ion - induced electron emission from metal surfaces - insights from the emission statistics*  
Surface Science **281** (1993) 143 - 152  
[http://dx.doi.org/10.1016/0039-6028\(93\)90864-G](http://dx.doi.org/10.1016/0039-6028(93)90864-G)
- A43 M. Gieler, **F. Aumayr**, R. Gaggl, C. Neureiter and L. Windholz  
*Application of an electro-optical modulator in inelastic collision studies with laser excited Na\*(3p) atoms*  
Journal of Physics B: At.Mol.Opt.Phys. **26** (1993) 297 - 303  
<http://dx.doi.org/10.1088/0953-4075/26/2/013>
- A44 K. Töglhofer, **F. Aumayr**, H. Kurz, HP. Winter, P. Scheier and T.D. Märk  
*Near-threshold electron emission from slow cluster impact on clean gold*  
Europhysics Letters **22** (1993) 597 - 602  
<http://dx.doi.org/10.1209/0295-5075/22/8/007>
- A45 **F. Aumayr**, H. Kurz, K. Töglhofer and HP. Winter  
*Slow electron emission from slow hollow atoms produced near a clean metal surface*  
Nuclear Instruments and Methods in Physics Research B **78** (1993) 99 - 105  
[http://dx.doi.org/10.1016/0168-583X\(93\)95784-3](http://dx.doi.org/10.1016/0168-583X(93)95784-3)
- A46 M. Gieler, **F. Aumayr**, J. Schweinzer, W. Koppensteiner, W. Husinsky, HP. Winter, K. Lozhkin and J.P. Hansen  
*Electron capture by doubly charged ions from laser excited alkali atoms: I. He<sup>2+</sup> - Na\*(3p) collisions*  
Journal of Physics B: At.Mol.Opt.Phys. **26** (1993) 2137 - 2151  
<http://dx.doi.org/10.1088/0953-4075/26/14/014>
- A47 M. Gieler, **F. Aumayr**, M. Weber, HP. Winter and J. Schweinzer  
*Electron capture by doubly charged ions from laser excited alkali atoms: II. He<sup>2+</sup> - Li\*(2p) collisions*  
Journal of Physics B: At.Mol.Opt.Phys. **26** (1993) 2153 - 216  
<http://dx.doi.org/10.1088/0953-4075/26/14/015>
- A48 E. Wolfrum, **F. Aumayr**, D. Wutte, HP. Winter, E. Hintz, D. Rusbüldt and R.P. Schorn  
*Fast lithium - beam spectroscopy of tokamak edge plasmas*  
Review of Scientific Instruments **64** (1993) 2285 - 2292  
<http://dx.doi.org/10.1063/1.1144460>
- A49 H. Kurz, **F. Aumayr**, C. Lemell, K. Töglhofer and HP. Winter  
*Neutralization of slow multicharged ions at a clean gold surface: Total electron yields*  
Physical Review A **48** (1993) 2182 - 2191  
<http://dx.doi.org/10.1103/PhysRevA.48.2182>
- A50 H. Kurz, **F. Aumayr**, C. Lemell, K. Töglhofer and HP. Winter  
*Neutralization of slow multicharged ions at a clean gold surface: Electron emission statistics*  
Physical Review A **48** (1993) 2192 - 2197  
<http://dx.doi.org/10.1103/PhysRevA.48.2192>
- A51 **F. Aumayr**, H. Kurz, D. Schneider, M.A. Briere, J.W. McDonald, C.E. Cunningham and HP. Winter  
*Emission of electrons from a clean gold surface induced by slow, very highly charged ions at the image charge acceleration limit*  
Physical Review Letters **71** (1993) 1943 - 1946  
<http://dx.doi.org/10.1103/PhysRevLett.71.1943>
- A52 K. Töglhofer, **F. Aumayr**, H. Kurz, HP. Winter, P. Scheier and T.D. Märk  
*Near-threshold electron emission from impact of slow van der Waals clusters and fullerene ions on clean gold*  
Journal of Chemical Physics **99** (1993) 8254 - 8261  
<http://dx.doi.org/10.1063/1.465651>

- A53 **F. Aumayr**, H. Kurz, HP. Winter, D. Schneider, M.A. Briere and J.W. McDonald  
*Distinction between multicharged ion species with equal  $q/m$*   
Review of Scientific Instruments **64** (1993) 3499 - 3502  
<http://dx.doi.org/10.1063/1.1144274>
- A54 **F. Aumayr**, T.D. Märk and HP. Winter  
*The statistics of slow ion-induced electron emission from clean metal surfaces - measurement and applications*  
International Journal of Mass Spectrometry and Ion Processes **129** (1993) 17 - 29  
[http://dx.doi.org/10.1016/0168-1176\(93\)87025-N](http://dx.doi.org/10.1016/0168-1176(93)87025-N)
- A55 **F. Aumayr** and HP. Winter  
*Emission of slow and fast electrons from clean metal surfaces under impact of slow multicharged ions*  
Comments on Atomic and Molecular Physics **29** (1994) 275 – 303
- A56 **F. Aumayr**, H. Kurz and HP. Winter  
*Slow electrons produced by slow multicharged ions on a clean metal surface*  
Nuclear Instruments and Methods in Physics Research B **87** (1994) 130 - 137  
[http://dx.doi.org/10.1016/0168-583X\(94\)95248-5](http://dx.doi.org/10.1016/0168-583X(94)95248-5)
- A57 M. Leitner, D. Wutte, J. Brandstötter, **F. Aumayr** and HP. Winter  
*Single-stage 5 GHz ECR-multicharged ion source with high magnetic mirror ratio and biased disk*  
Review of Scientific Instruments **65** (1994) 1091 - 1093  
<http://dx.doi.org/10.1063/1.1145073>
- A58 K. Töglhofer, **F. Aumayr**, H. Kurz, HP. Winter, P. Scheier and T.D. Märk  
*Electron emission induced by cluster impact on a clean metal surface*  
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[http://dx.doi.org/10.1016/0168-583X\(94\)96078-X](http://dx.doi.org/10.1016/0168-583X(94)96078-X)
- A59 **F. Aumayr** and HP. Winter  
*Electron emission induced by slow highly charged ions on a clean metal surface*  
Nuclear Instruments and Methods in Physics Research B **90** (1994) 523 - 532  
[http://dx.doi.org/10.1016/0168-583X\(94\)95607-3](http://dx.doi.org/10.1016/0168-583X(94)95607-3)
- A60 H. Kurz, **F. Aumayr**, HP. Winter, D. Schneider, M.A. Briere and J.W. McDonald  
*Electron emission and image - charge acceleration for the impact of very highly charged ions on clean gold*  
Physical Review A **49** (1994) 4693 - 4702  
<http://dx.doi.org/10.1103/PhysRevA.49.4693>
- A61 M. Pöckl, M. Hebenstreit, T. Neger and **F. Aumayr**  
*Time - dependent collisional - radiative model for capillary discharge plasmas*  
Journal of Applied Physics **76** (1994) 733 - 737  
<http://dx.doi.org/10.1063/1.357818>
- A62 K. Ilcisin, S. Suckewer, **F. Aumayr** and J.L. Schwob  
*Demonstration of resonant fluorescence in MoVII induced by MoXII for possible lasing near 600 Å*  
Journal Optical Society America B **11** (1994) 1436 - 1444  
<http://dx.doi.org/10.1364/JOSAB.11.001436>
- A63 M. Vana, **F. Aumayr**, P. Varga and HP. Winter  
*Electron emission from polycrystalline Lithium Fluoride induced by slow multicharged ions*  
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<http://dx.doi.org/10.1209/0295-5075/29/1/010>

- A64 M. Pöckl, H. Störi and **F. Aumayr**  
*Scheme for stationary continuous - wave vacuum- and extreme-ultraviolet lasing based on a plasma jet*  
Journal of Applied Physics **77** (1995) 3575 - 3577  
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- A65 T. Neidhart, F. Pichler, **F. Aumayr**, HP. Winter, M. Schmid and P. Varga  
*Secondary ion emission from lithium fluoride under impact of slow multicharged ions*  
Nuclear Instruments and Methods in Physics Research B **98** (1995) 465 - 468  
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- A66 M. Vana, **F. Aumayr**, P. Varga and HP. Winter  
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- A67 M. Vana, H. Kurz, HP. Winter and **F. Aumayr**  
*Potential and kinetic electron emission from clean gold induced by multicharged nitrogen ions*  
Nuclear Instruments and Methods in Physics Research B **100** (1995) 402 - 406  
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- A68 T. Neidhart, F. Pichler, **F. Aumayr**, HP. Winter, M. Schmid and P. Varga  
*Potential sputtering of Lithium Fluoride by slow multicharged ions*  
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- A69 HP. Winter and **F. Aumayr**  
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Comments on Atomic and Molecular Physics **31** (1995) 125 - 134
- A70 J. Schweinzer, **F. Aumayr**, P. Platzer, M. Schneider, D. Wutte and HP. Winter  
*Two programs for calculations of collisional atomic data for lithium - beam plasma spectroscopy*  
Computer Physics Communication **88** (1995) 83 - 88  
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- A71 J. Limburg, S. Schippers, R. Hoekstra, R. Morgenstern, H. Kurz, **F. Aumayr** and HP. Winter  
*Do hollow atoms exist in front of an insulating LiF(100) surface?*  
**Physical Review Letters** **75** (1995) 217 - 219  
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- A72 C.Lemell, HP. Winter, **F. Aumayr**, J. Burgdörfer and C. Reinhold  
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- A73 M. Vana, **F. Aumayr**, C. Lemell and HP. Winter  
*Ion-induced electron emission from solid surfaces -information content of the electron number statistics*  
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