

GSI-Reports and Preprints

Reports

2000-01

Grundinger, U.(ed.):

Scientific Report 1999

2000-02

Bock, R.: (ed.)

High Energy Density in Matter Produced by Heavy Ion Beams

(Annual Report 1999)

2000-03

Kagarlis, M.A.:

PLUTO⁺⁺ - A Monte Carlo Simulation Tool for Hadronic Physics

2000-04

Kraft, G.; K. Langbein:

7th Workshop on Heavy Charged Particles in Biology and Medicine

(Book of Abstract)

Preprints

2000-01

Weick, H.; H. Geissel, C. Schneidenberger, F. Attalah, T. Baumann, D. Cortina, M. Hausmann, B. Lommel, G. Münzenberg, N. Nankov, F. Nickel, T. Radon, H. Schatz, K. Schmidt, J. Stadlmann, K. Sümmerer, M. Winkler, H. Wollnik:

Slowing Down of Relativistic Few-Electron Heavy Ions

[Nucl. Instr.+Meth. in Phys. Res. B164/165,168\(2000\)](#)

2000-02

Hofmann, S.; G. Münzenberg:

The Discovery of the Heaviest Elements

[Rev. on Mod. Phys. 72, 733 \(2000\)](#)

2000-03

Feldmeier, H.; J. Schnack:

Molecular Dynamics for Fermions

[Rev. on Mod. Phys. 72, 655 \(2000\)](#)

2000-04

Wlazlo, W.; T. Enqvist, P. Armbruster, J. Benlliure, M. Bernas, A. Boudard, S. Czajkowski, R. Legrain, S. Leray, B. Mustapha, M. Pravikoff, F. Rejmund, K.-H. Schmidt, C. Stephan, J. Taieb, L. Tassan-Got, C. Volant:

Cross-Sections of Spallation Residues Produced in 1A GeV ²⁰⁸Pb on Proton Reactions

[Phys. Rev. Lett. 84, 5736 \(2000\)](#)

2000-05

Benlliure, J.; P. Armbruster, M. Bernas, A. Boudard, J.P. Dufour, T. Enqvist, R. Legrain, S. Leray, B. Mustapha, F. Rejmund, K.-H. Schmidt, C. Stephan, L. Tassan-Got, C. Volant:

Isotopic Production Cross Sections of Fission Residues in ¹⁹⁷Au+p Collisions at 800 A MeV

2000-06

Rejmund, F.; B. Mustapha, P. Armbruster, J. Benlliure, M. Bernas, A. Boudard, J.P. Dufour, T. Enqvist, R. Legrain, S. Leray, K.-H. Schmidt, C. Stephan, J. Taieb, L. Tassan-Got, C. Volant:

Measurement of Isotopic Cross Sections of Spallation Residues in 800 A MeV ¹⁹⁷Au+p Collisions

2000-07

Chulkov, L.V.; O.V. Bochkarev, D. Cortina-Gil, H. Geissel, M. Hellström, M. Ivanov, R. Janik, K. Kimura, T. Kobayashi, A.A. Korscheninnikov, G. Münzenberg, F. Nickel, A.A. Ogloblin, A. Ozawa, M. Pfützner, V.N. Pribora, M.V. Rozhkov, H. Simon, B. Sitar, P. Strmen, K. Sümmerer, T. Suzuki, I. Tanihata, M. Winkler, K. Yoshida:

Total Charge-Changing Cross Sections for Neutron-Rich Light Nuclei

(Nucl. Phys. A674, 330 (2000))

2000-08

Pestov, Yu. N.; H.R. Schmidt, B. Schreiber:

Timing Performance of Spark Counters and Photon Feedback

[Nucl. Instr. + Meth. in Phys. Res. A456,11\(2000\)](#)

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2000-09

Berdermann, E.; B.E. Fischer, M. Schlögl,
H. Stelzer, B. Voss:

**Recent Results from CVD-Diamond Heavy-Ion
Detectors**

2000-10

Odeh, T.; R. Bassini, M. Begemann-Blaich, S. Fritz,
S.J. Gaff-Ejakov, D. Gourio, C. Groß, G. Imme,
I. Iori, U. Kleinevoß, G.J. Kunde, W.D. Kunze,
U. Lynen, V. Maddalena, M. Mahi, T. Möhlenkamp,
A. Moroni, W.F.J. Müller, C. Nociforo, B. Ocker,
F. Petruzzelli, J. Pochodzalla, G. Raciti,
G. Riccobene, F.P. Romano, A. Saija, M. Schnittker,
A. Schüttauf, C. Schwarz, W. Seidel, V. Serfling,
C. Sfienti, W. Trautmann, A. Trzcinski, G. Verde,
A. Wörner, Hongfei Xi, B. Zwieglinski:

**Fragment Kinetic Energies and Modes of
Fragment Formation**

[Phys. Rev. Lett. 84, 4557 \(2000\)](#)

2000-11

Schmidt, K.-H.:

**A New Test for Random Events of an
Exponential Distribution**

[Eur. Phys. J. A8, 141 \(2000\)](#)

2000-12

Lutz, M.; W. Florkowski:

**Non-Local Effects in Kaonic Atoms
Systematic Experimental Survey on Projectile
Fragmentation and Fission Induced in Collisions
of ^{238}U at 1 AGeV with Pb**

[Acta Phys. Pol. B31, 2567 \(2000\)](#)

2000-13

Wagner, A.; C. Müntz, H. Oeschler, C. Sturm,
R. Barth, M. Cieslak, M. Debowski, E. Grosse,
P. Koczon, F. Laue, M. Mang, D. Miskowiec,
E. Schwab, P. Senger, P. Beckerle, D. Brill, Y. Shin,
H. Ströbele, W. Walus, B. Kohlmeier, F. Pühlhofer,
J. Speer, I.K. Yoo:

**The Emission Pattern of High-Energy Pions:
A New Probe for the Early Phase of Heavy Ion
Collisions**

[Phys. Rev. Lett. 85, 18 \(2000\)](#)

2000-14

Herfurth, F.; J. Dilling, A. Kellerbauer, G. Bollen,
S. Henry, H.-J. Kluge, E. Lamour, D. Lunney,
R.B. Moore, C. Scheidenberger, S. Schwarz,
G. Sikler, J. Szerypo:

**A Linear Radiofrequency Ion Trap for
Accumulation, Bunching, and Emittance
Improvement of Radioactive Ion Beams**

2000-15

Beck, D.; F. Ames, G. Audi, G. Bollen, F. Herfurth,
H.-J. Kluge, A. Kohl, M. König, D. Lunney,
I. Martel, R.B. Moore, H. Raimbault-Hartmann,
E. Schark, S. Schwarz, M. de Saint Simon,
J. Szerypo (ISOLDE Collaboration):

**Accurate Masses of Unstable Rare Earth Isotopes
by ISOLTRAP**

[Eur. Phys. J. A8, 307 \(2000\)](#)

2000-16

Schmidt, K.; C. Mazzocchi, R. Borcea, J. Döring,
S. Galanopoulos, M. Gorska, H. Grawe,
S. Harissopulos, M. Hellström, Z. Janas,
R. Kirchner, G. Kriembardis, M. La Commara,
A.N. Ostrowski, G. Rainowski, E. Roeck:

Beta Decay of ^{93}Pd

[Eur. Phys. J. A8, 303 \(2000\)](#)

2000-17

Grawe, H.; M. Gorska, C. Fahlander, M. Palacz,
F. Nowacki, E. Caurier, J.M. Daugas,
M. Lewitowicz, M. Sawicka, R. Grzywacz,
K. Rykaczewski, O. Sorin, S. Leenhardt, F. Azaiez:
**Experimental Approach towards Shell Structure
at ^{100}Sn and ^{78}Ni**

2000-18

Datta Pramanik, U.; T. Aumann,
A. Leistenschneider, K. Boretzky, D. Cortina,
J. Cub, W. Dostal, Th.W. Elze, H. Emling,
H. Geissel, A. Grünschloß, M. Hellström,
R. Holzmann, S. Ilievski, N. Iwasa, M. Kaspar,
A. Kleinböhl, J.V. Kratz, R. Kulesa, Y. Leifels,
E. Lubkiewicz, G. Münzenberg, P. Reiter,
M. Rejmund, C. Scheidenberger, Ch. Schlegel,
H. Simon, J. Stroth, K. Sümmerer, E. Wajda,
W. Walus, S. Wan:

**Measurement of the Dipole Response of Neutron-
Rich Nuclei in the $A \sim 20$ Region**

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2000-19

Braun-Munzinger, P.; J. Stachel

(Non) Thermal Aspects of Charmonium Products and a New Look at J/ψ Suppression

[Phys. Lett. B490, 196 \(2000\)](#)

2000-20

Braun-Munzinger, P.:

Chemical Equilibration and the Hadron-QGP Phase Transition

2000-21

Sobiczewski, A.; I. Muntian, Z. Patyk:

Problem of "Deformed" Superheavy Nuclei

2000-22

Markenroth, K.; M. Meister, B. Eberlein, D. Aleksandrov, T. Aumann, L. Axelsson, T. Baumann, M.J.G. Borge, L.V. Chulkov, W. Dostal, Th.W. Elze, H. Emling, H. Geissel, A. Grünschoß, M. Hellström, J. Holeczek, B. Jonson, J.V. Kratz, R. Kulessa, A. Leistenschneider, I. Mukha, G. Münzenberg, F. Nickel, T. Nilsson, G. Nyman, M. Pfützner, V. Pribora, A. Richter, K. Riisager, C. Scheidenberger, G. Schrieder, H. Simon, J. Stroth, O. Tengblad, M.V. Zhukov:
 ^8He - ^6He : A Comparative Study of Nuclear Fragmentation Reactions

2000-23

Gadea, A.; S.M. Lenzi, D.R. Napoli, C.A. Ur, G. Martinez-Pinedo, M. Gorska, E. Caurier, M. Axiotis, G. de Angelis, F. Brandolini, D. Cano-Ott, E. Farnea, E. Nacher, B. Rubio, J.L. Tain, R. Borcea, J. Döring, H. Grawe, Z. Janas, R. Kirchner, M. La Commara, C. Mazzocchi, E. Roeckl, K. Schmidt, C. Fahlander, M. Hellström, L. Batist, A. Plochocki, J. Zylicz, C. Plettner, R. Schwengner, J. Äystö, P. Dendooven, M. Gierlik, A. Jokinen, M. Karny, P. Mayet, A. Nieminen, H. Penttilä, M. Rejmund, C. Schlegel, M. Sawicka, J. Eberth, T. Steinhardt, B.A. Brown, Z. Hu, V. Belleguic, C. Bingham, S. Galanopoulos, M. Gierlik, S. Harissopulos, G. Kriembardis, A. Ostrowski, G. Rainowski:

Recent Experiments on $N=Z$ Nuclei, Performed at the GSI On-Line Mass Separator

2000-24

Krämer, M.; M. Scholz:

Treatment Planning for Heavy Ion Radiotherapy: Calculation and Optimization of Biologically Effective Dose
[Phys. in Med. and Biol., 45, 3319 \(2000\)](#)

2000-25

Krämer, M.; O. Jäkel, T. Haberer, G. Kraft, D. Schardt, U. Weber:

Treatment Planning for Heavy Ion Radiotherapy: Physical Beam Model and Dose Optimization
[Phys. in Med. and Biol., 45, 3299 \(2000\)](#)

2000-26

Grawe, H.; M. Gorska, J. Döring, C. Fahlander, M. Palacz, F. Nowacki, E. Caurier, J.M. Daugas, M. Lewitowicz, M. Sawicka, M. Pfützner, R. Grzywacz, K. Rykaczewski, O. Sorlin, S. Leenhardt, F. Azaiez, M. Rejmund, K. Hauschild, J. Uusitalo:

Nuclear Structure in the Vicinity of Shell Closures far from Stability

2000-27

Pochodzalla, J.; W. Trautmann:

Chemical Equilibrium and Isotope Temperatures

2000-28

Enqvist, T.; W. Wlazole, P. Armbruster, J. Benlliure, M. Bernas, A. Boudard, S. Czajkowski, R. Legrain, S. Leray, B. Mustapha, M. Pravikoff, F. Rejmund, K.-H. Schmidt, C. Stephan, J. Taieb, L. Tassan-Got, C. Volant:

Isotopic Yields and Kinetic Energies of Primary Residues in 1 AGeV $^{208}\text{Pb}+p$ Reactions

2000-29

Ma, X.; Th. Stöhlker, F. Bosch, O. Brinzaescu, S. Fritzsche, C. Kozhuharov, P. Mokler, T. Ludziejewski, A. Warczak:

Subshell Differential Cross Sections for Electron Transfer in Collisions of U^{90+} Ions with Gaseous Targets

2000-30

Stöhlker, Th.; X. Ma, T. Ludziejewski, H.F. Beyer, F. Bosch, O. Brinzaescu, R.W. Dunford, J. Eichler, S. Hagmann, A. Ichihara, C. Kozhuharov, A. Krämer, D. Liesen, P.H. Mokler, Z. Stachura, P. Swiat, A. Warczak:

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Near-Threshold Photionization of Hydrogenlike Uranium Studied in Ion-Atom Collisions via the Time-Reversed Process

2000-31

Krämer, A.; A. Kritzer, H. Reich, Th. Stöhlker:
Commisioning of a Hydrogen Cluster Target at the Experimental Storage Ring

2000-32

Stöhlker, Th.; P.H. Mokler, F. Bosch, R.W. Dunford, B. Franzke, O. Klepper, C. Kozhuharov, T. Ludziewski, F. Nolden, H. Reich, P. Rymuza, Z. Stachura, M. Steck, P. Swiat, A. Warczak:
The 1s Lamb Shift in Hydrogenlike Uranium Measured on Cooled, Decelerated Ion Beams
[Phys. Rev. Lett. 85, 3109 \(2000\)](#)

2000-33

Brinزانescu, O.; Th. Stöhlker:
Radiative Recombination Rate Coefficients

2000-34

Hu, Z.; L. Batist, J. Agramunt, A. Algora, B.A. Brown, D. Cano-Ott, R. Collatz, A. Gadea, M. Gierlik, M. Gorska, H. Grawe, M. Hellström, Z. Janas, M. Karny, R. Kirchner, F. Moroz, A. Plochocki, M. Rejmund, E. Roeckl, B. Rubio, M. Shibata, J. Szerypo, J.L. Tain, V. Wittmann:
Beta Decay of ^{98}Ag : Evidence for the Gamow-Teller Resonance near ^{100}Sn
[\(Phys. Rev. C62, 064315 \(2000\)\)](#)

2000-35

Senger, P.:
Strange Mesons in Dense Nuclear Matter
[Workshop 'Hirscheegg' \(2000\)](#)

2000-36

Menzel, M.; I. Böttcher, M. Debowski, F. Dohrmann, A. Förster, E. Grosse, P. Koczon, B. Kohnmeyer, F. Laue, L. Naumann, H. Oeschler, F. Pühlhofer, E. Schwab, P. Senger, Y. Shin, H. Ströbele, C. Sturm, G. Surowka, F. Uhlig, A. Wagner, W. Walus:

First Measurement of Antikaon Phase-Space Distributions in Nucleus-Nucleus Collisions at Subthreshold Beam Energies
[Phys. Lett B495, 26 \(2000\)](#)

2000-37

Benlliure, J.; J. Pereira-Conca, K.-H. Schmidt:
New Approach to Determine the Angular Transmission in Zero-Degree Magnetic Spectrometers

2000-38

Schmidt, K.-H.; J. Benlliure, A.R. Junghans:
Fission of Nuclei far from Stability

2000-39

Ivanov, Yu.B.; E.G. Nikonov, W. Nörenberg, A.A. Shanenko, V.D. Toneev:
Directed Flow of Baryons in Heavy-Ion Collisions

2000-40

Jacoby, J.:
Which-Path Information and Interference of Elastic Scattering

2000-41

Benlliure, J.; K. Helariutta, M.V. Ricciardi, K.-H. Schmidt:
Model Calculations of a Two-Step Reaction Scheme for the Production of Neutron-Rich Secondary Beams

2000-42

Sturm, C.; I. Böttcher, M. Debowski, A. Förster, E. Grosse, P. Koczon, B. Kohnmeyer, F. Laue, L. Naumann, H. Oeschler, F. Pühlhofer, E. Schwab, P. Senger, Y. Shin, J. Speer, H. Ströbele, G. Surowka, F. Uhlig, A. Wagner, W. Walus:
Evidence for a Soft Nuclear Equation-of-State from Kaon Production in Heavy-Ion Collisions
[Phys. Rev. Lett. 86, 39 \(2001\)](#)

2000-43

Schwarz, C.:
Proton Emission Times in Spectator Fragmentation

2000-44

Trautmann, W.:
Hot Fragmentation of Nuclei

2000-45

Ionescu, D.C.; A.H. Sorensen, A. Belkacem:
Photoionization at Relativistic Energies

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2000-46

Protic, D.; Th. Stöhlker, H.F. Beyer, J. Bojowald, G. Borchert, A. Gumberidze, A. Hamacher, C. Kozhuharov, X. Ma, I. Mohos:

A Micro-Strip Germanium Detector for Position Sensitive X-Ray Spectroscopy

2000-47

Ma, X; Th. Stöhlker, F. Bosch, O. Brinzanescu, S. Fritzsche, C. Kozhuharov, T. Ludziejewski, P.H. Mokler, Z. Stachura, A. Warczak:

State-Selective Electron Capture into He-Like U^{90+} Ions in Collisions with Gaseous Targets

2000-48

Herfurth, F.; J. Dilling, A. Kellerbauer, G. Audi, D. Beck, G. Bollen, S. Henry, H.-J. Kluge, D. Lunney, R.B. Moore, C. Scheidenberger, S. Schwarz, G. Sikler, J. Szerypo:

Breakdown of the Isobaric Multiplet Mass Equation (IMME) at $a=33$, $T=3/2$

2000-49

Vogt, R.:

Shadowing Effects on Vector Boson Production

2000-50

Botvina, A.S.; I.N. Mishustin:

Statistical Evolution of Isotope Composition of Nuclear Fragments

2000-51

Nörenberg, W.; G. Papp, P. Rozmej:

Stability and Instability of a Hot Dilute Nuclear Droplet

[Eur. Phys. J. A9, 327 \(2000\)](#)

2000-52

Hofmann, S.; F.P. Heßberger, D. Ackermann, S. Antalic, P. Cagarda, B. Cwiok, B. Kindler, J. Kojouharova, B. Lommel, R. Mann, G. Münzenberg, A.G. Popeko, S. Saro, H.J. Schött, A.V. Yeremin:

The new Isotope $^{270}110$ and its Decay Products $^{266}110$ and $^{262}110$

2000-53

Hofmann, S.:

Synthesis of Superheavy Elements Using Radioactive Beams and Targets

2000-54

Shevelko, V.P.; I.Yu. Tolstikhina, Th. Stöhlker:

Stripping of Fast Heavy Low-Charged Ions in Gaseous Targets

2000-55

Braun-Munzinger, P.; J. Stachel:

On Charm Production near the Phase Boundary

2000-56

Karny, M.; L. Batist, B.A. Brown, D. Cano-Ott, R. Collatz, A. Gadea, R. Grzywacz, A. Guglielmetti, M. Hellström, Z. Hu, Z. Janas, R. Kirchner, F. Moroz, A. Piechaczek, A. Plochocki, E. Roeckl, B. Rubio, K. Rykaczewski, M. Shibata, J. Szerypo, J.L. Tain, V. Wittmann, A. Wöhr:

Determination of the Gamow-Teller Strength Function for the Neutron-Deficient Isotopes

$^{104-107}110$