

PROF. I. R. DR. UWE KREIBIG  
I. PHYSIKALISCHES INSTITUT  
DER RHEINISCH-WESTFÄLISCHEN  
TECHNISCHEN HOCHSCHULE  
R W T H AACHEN

ADRESSE: D-52074 AACHEN / BRD  
Sommerfeldstraße 14, Turm 28  
POST: D-52056 AACHEN / BRD  
Postfach  
TELEFON: \*\*49 - 241 - 80 - 7176 (- 7156)  
TELEFAX \*\*49 - 241 - 8888 - 331  
e-mail: kreibig@physik.rwth-aachen.de

---

2014

26. 11.

# PUBLICATIONS

CONTENTS: PART A: PUBLICATIONS CONCERNING SCIENTIFIC RESEARCH  
PART B: PUBLICATIONS CONCERNING DIDACTICS

---

## PART A : PUBLICATIONS CONCERNING SCIENTIFIC RESEARCH

---

2013

---

### REVIEW ARTICLE

U. Kreibig et al.  
*Fundamentals of Linear Nanooptics and Nanoplasmonics*  
In preparation

N. Strohfeld, A. Tittl, M. Schäferling, F. Neubrech, U. Kreibig, R. Griessen, H. Giessen  
*Yttrium Hidride Nanoantennas for Active Plasmonics*  
Nano Letters Feb 2014

---

2009

---

U. Kreibig, M. Quinten  
*Copper Nanoparticles: Optical Plasmon- and Bandstructure-Excitations*  
in preparation

U. Kreibig  
*Gold-, Silber- und Kupfer-Farben von Gläsern : Beispiele für zwei Jahrtausende Nanotechnologie*  
in preparation

---

2008

---

U. Kreibig  
*Interface-induced Dephasing of Mie-Plasmon Polaritons*  
Appl. Phys. B 93, 79-89, 2008

U. Kreibig  
*Hundert Jahre Mie-Theorie*  
Physik in unserer Zeit 39, Nummer 6 281-287 (2008)  
Zusätzlich : Ergänzungen zu dem Artikel unter [www.phiu.z.de](http://www.phiu.z.de) :  
*Leben und Werk von Gustav Mie ;*  
*Aufbau der Mie-Theorie;*  
*Korrekturen und Erweiterungen der Mie-Theorie*

T.E. Weirich, A. Reinholdt, U. Kreibig, J. Mayer  
*Energy filtering TEM analysis of nanoelectronic device structures: fast and efficient way to assess chemical microstructures*  
Materials Science and Technology 24, 667-673 (2008)

U. Kreibig, M. Quinten, A.L. Stepanov  
*Numerical Test of Maxwell Garnett Theory by Comparison with tge Generalized Mie Theory*  
In preparation

U. Kreibig  
*How large is the Lorentz-Sphere ?*  
In preparation

---

2007

---

**REVIEW-ARTICLE :**  
A.O. Pinchuk, G.C. Schatz, A. Reinholdt, U. Kreibig  
*Optics of Nanoparticles: Substrate, Size and Interface Effects*  
In: Nanotechnology Research Journal Vol.1, 1-72, 2007

**BOOK :**  
M. Quinten, U.Kreibig  
*Optical Properties of Nanoparticles Beyond Mie's Theory*  
Textbook, in preparation for „Springer Series in Cluster Physics“

A.L. Stepanov, M. Quinten, U. Kreibig  
*Maxwell Garnett Theory versus Generalized Mie Theory: A numerical Comparison for Silver-Nanos*  
to be published

U. Kreibig, A. Hilger, H. Hövel, M. Quinten, D. Wagner, H. Ditlbacher  
*A Short Survey of Optical Properties of Metal Nanostructures*  
in: *Functional Properties of Nanostructured Materials* (ed. R. Kassing), 75 - 110, Springer 2006

G. Bour, C. Keutgen, A.L. Stepanov, U. Kreibig  
*Properties of Gadolinium Nanoparticles during Hydrogenation*  
to be published

G. Bour, C. Keutgen, A. L. Stepanov, U. Kreibig  
*Production and subsequent Oxidation of Nickel Nanoparticles*  
to be published

G. Bour, C. Keutgen, M. Heise, A. L. Stepanov, U. Kreibig  
*On the Oxidation of Yttrium Nanoparticles*  
to be published

G. Bour, C. Keutgen, A.L. Stepanov, U. Kreibig  
*Plasma induced Yttrium Hydride Nanoparticles*  
to be published

G.Bour, C. Keutgen, A.L. Stepanov, U. Kreibig  
*Structural Phase Change in Yttrium and Yttrium Hydride Nanoparticles*  
to be published

---

2006

---

V.Schneider, A.Reinholdt, U.Kreibig, T.Weirich, G.Güntherodt, B. Beschoten, A.Tillmanns, H.Krenn, K.Rumpf,  
P. Granitzer  
*Structural and Magnetic Properties of Ni/NiOxide- and Co/CoOxide Core-Shell Nanoparticles*  
*and their possible Use for Ferrofluids*  
Z. Phys. Chem 220, 173-187 (2006)

---

2005

---

U. Kreibig  
*Optische Effekte von Nanopartikeln : Körperfarben und Interferenzfarben als Indikatoren für Nanoeigenschaften*  
"Bild und Erkenntnis" Hrg A. Beyer, M. Lohoff, Deutscher Kunstverlag, München, 226.227 (2005)

H.Ditlbacher, A.Hohenau, D.Wagner, U.Kreibig, M.Rogers, F.Hofer, F.Aussenegg, J.R.Krenn  
*Silver Nanowires as Surface Plasmon Resonators*  
Phys. Rev. Lett. 95, 257403-1 - 4 (2005)

U.Kreibig, D.Wagner, A.Graff, H.Ditlbacher  
*Oberflächenplasmonen auf Silber-Nanodrähten*  
Photonik 37-3, 105-106 (2005)

A. Graff, D. Wagner, H. Ditlbacher, U. Kreibig  
*Silver Nanowires*  
European Physical Journal D34, 263-269 (2005)

A.Hilger, Th.von Hofe, U. Kreibig  
*Recent Investigations of Size and Interface Effects in Nanoparticle Composites*  
Nova Acta Leopoldina NF 92, Nr. 340, 9 - 19 (2005)

---

2004

---

A. Reinholdt, R. Pecenka, A. Pinchuk. S. Runte, A.. Stepanov, T.Weirich, U. Kreibig  
*Structural, compositional, optical and colorimetric characterization of TiN-nanoparticles*  
The European Physical Journal D (2004), 69 - 76

A.L. Stepanov, R.I. Khaibullin, B.Z. Ramev, A. Reinholdt, R. Pecenka, U. Kreibig  
*New laser ablation cluster source for a synthesis of magnetic nanoparticles and FMR study of Ni:MgF<sub>2</sub> composites*  
Nanostructured Magnetic Materials and their Applications, Ed.: Bekir Aktas, Lenar Tagirov, Faik Mikailov,  
Proceedings of the NATO Advanced Research Workshop, Istanbul, Turkey 1-3 July 2003,  
NATO Science Series: II Mathematics, Physics and Chemistry V. 143, Kluver Academic Publishers,  
London (2004) 23-31.

A.L. Stepanov, R.I. Khaibullin, B.Z. Rameev, A. Reinholdt, U. Kreibig  
*Synthesis and magnetic properties of nickel nanoparticles in magnesium fluoride matrix*  
Tech. Phys. Lett. 30 (2) (2004) 151-153.

A. Graff, U. Kreibig, D. Wagner  
*Metallische Nanodrähte*  
RWTH-Themen 1-2004 Vielfalt des Nanokosmos (Pressestelle der RWTH-Aachen) 39 - 41

U. Kreibig, G. v. Plessen, U. Simon  
*Optische Eigenschaften metallischer Nanopartikel*  
RWTH-Themen 1-2004 Vielfalt des Nanokosmos (Pressestelle der RWTH-Aachen) 48 - 50

Anatoliy Pinchuk, Gero von Plessen und Uwe Kreibig  
*Influence of interband electronic transitions on the optical absorption in metallic nanoparticles*  
Journal of Physics D: Applied Physics **37**, 3133-3139 (2004)

A. Pinchuk, A. Hilger, G. von Plessen und U. Kreibig  
*Substrate effect on the optical response of silver nanoparticles*  
Nanotechnology **15**, 1890-1896 (2004)

REVIEW-ARTICLE :  
U. Kreibig, M. Quinten  
*Heterogeneous Materials*  
in: Encyclopedia of Modern Optics (Ed. B. Guenther, D. Steel, L. Bayvel)  
Vol. 3, Elsevier Academic Press (2004), 446 - 460

---

2003

---

A. Pinchuk, U. Kreibig  
*Interface decay channel of particle surface plasmon resonance*  
New Journal of Physics 5, (2003), 1-15

A.O.Pinchuk, U. Kreibig, A. Hilger

*Titel:*

Surface Science 2003, 557, 269

A.O. Pinchuk, U. Kreibig, A. Hilger

*Optical Properties of metallic nanoparticles: influence of interface effects and interband transitions*  
Proceedings of the III. International Conference "Optics 2003" St Petersburg, Russia, 20-24. Oct.

A.O. Pinchuk, U. Kreibig, A. Hilger

*Optical Properties of metallic nanoparticles*

Proceedings of the "Nanoscience & Technology Conference" 18-21. May 2003 Groningen, NL

A.Reinholdt, R.Detemple, A. Stepanov, T. Weirich, U. Kreibig

*Novel Nanoparticle Matter: ZrN-Nanoparticles*

Applied Physics B77 (2003), 681-686

U.Kreibig, M. Vollmer

*Spektroskopie von Nanopartikeln*

Praxis der Naturwissenschaften/Physik in der Schule 52, 24 (2003)

---

2002

U. Kreibig *Wann ist Gold ein Metall ?* Physik Journal 1 (2002), 20

P. Petkov,U. Kreibig, R. Kirov

*Optical Properties of the thin Ag containing Chalcogenide Films*

Extended Abstracts of XIII International Symposium on Non-oxide Glasses and new optical Glasses  
Pardubitz (2002)

M.Quinten, U. Kreibig, Th. Henning, H. Mutschke

*Wavelength-dependent Optical Extinction of Carbonaceous Particles in Atmospheric Aerosols and Interstellar Dust*

Applied Optics 41 (2002), 7102 - 7113

A.L.Stepanov, M. Gartz, G. Bour, A. Reinholdt, U. Kreibig

*Novel laser universal cluster ablation source - LUCAS*

Vacuum 67 (2002), 223-227

A.Stepanov, G. Bour, M. Gartz, Yu. Ozin, A. Reinhold, U. Kreibig

*Synthesis of Yttrium Clusters*

Vacuum 64 (2002), 9-14

A.L. Stepanov, G. Bour, A. Reinholdt, U. Kreibig,

*The formation of hydrogenated yttrium nanoparticles*

Technical Physics Letters, 28 (8) (2002) 642-644.

A.L. Stepanov,. V.N. Popok, I.B. Khaibullin, U. Kreibig,

*Optical properties of polymethylmethacrylate with implanted silver nanoparticles*

NIM B 191 (2002) 473-477

U. Kreibig

*Nanophysik und Nanotechnologie*

Manuskript, Fachdidaktik Uni Bonn (2002)

U. Kreibig

*Die "Nanowelt"*

Manuskript DPG Fortbildungskurs "Nanophysik und Nanotechnologie", Bad Honnef (2002)

G.Bour, A.Reinholdt, A.Stepanov, C. Keutgen, U. Kreibig  
*Optical and electrical Properties of hydrogenated Yttrium Nanoparticles*  
Eur.Phys.J. D 16, 219-223 (2001)

A. Hilger, M. Tenfelde, U. Kreibig  
*Silver Nanoparticles deposited on Dielectric Surfaces*  
Applied Physics B 73 (2001), 361-372

A.L.Stepanov, U. Kreibig, D.E. Hole, R.I.Khaibullin, I.B. Khaibullin, V.N. Popok  
*Laser Annealing of Sapphire with implanted Copper Nanoparticles*  
Nuclear Instruments and Methods in Physics Research B 178, 120-125 (2001)

U. Kreibig, B. Lengeler *Physik der kondensierten Materie (in Aachen)*  
RWTH-Themen 1 - 2001 "Physik der Kondensierten Materie" (Pressestelle der RWTH Aachen), S.8 -9

U. Kreibig  
*Cluster – Materie*  
RWTH-Themen 1 – 2001 "Physik der kondensierten Materie" (Pressestelle der RWTH Aachen) , S.40 – 43

M. Herrmann, R. Koltun, U. Kreibig, G. Schmid, G. Güntherodt  
*Manipulation of Ligand-Stabilized Au<sub>55</sub> – Clusters by Means of Tunneling Microscopy*  
Adv. Funct. Mater. 11, 202-207 (2001)

**REVIEW-ARTICLE :**  
U. Kreibig  
*Optical Properties of Nanostructured Matter, 3 Lectures*  
In: „Nanometer Scale Science and Technology“, Internatl. School of Physics „Enrico Fermi“ CXLIV, 141 – 184  
IOS Press Amsterdam (2001)

**REVIEW-ARTICLE :**  
H. Bönnemann, J. Hormes, U. Kreibig  
*Nanostructured Metal Clusters and Colloids*  
Teil 1: U.Kreibig: *Preparation Methods for Nanoparticles and Cluster-Matter by „Physical“ Means*  
In: „Handbook of Surfaces and Interfaces of Materials“(ed.H.S.Nalwa),Vol.3, 1- 87, Academic Press, San Diego (2001)

U. Kreibig  
*Optical Properties of Nanostructured Matter*  
Plenary lecture on the Occasion of 50. Jahrestagung der Österreichischen Physikalischen Gesellschaft 2000  
To be published

A. Heilmann, U. Kreibig  
*Optical Properties of embedded Metal Nanoparticles at low Temperatures*  
Eur. Phys. J. AP10, 193-202 (2000)

U. Kreibig, M.Gartz, A. Hilger, R. Neuendorf  
*Interfaces in Nanostructures: Optical Investigations on Cluster-Matter*  
NanoStructured Materials 11, 1335-1342 (2000)

A. Hilger, N. Cüppers, M. Tenfelde, U. Kreibig  
*Surface and Interface Effects in the Optical Properties of Silver Nanoparticles*  
Eur.Phys.J. D10, 115-118 (2000)

M. Westphalen, U. Kreibig, J. Rostalski, H. Lüth, D. Meissner  
*Metal Cluster Enhanced Organic Solar Cells*  
Solar Energy Materials & Solar Cells 61, 97-105 (2000)

J. Wollgarten, U. Kreibig  
*Aerosols and Compact Cluster-matter: Optical and magnetic Investigations on novel materials*  
in preparation

U. Kreibig, M. Gartz, A. Hilger, S. Künneke, M. Tenfelde  
*Chemical Reactions at and through Nanoparticle Interfaces*  
„Cluster and Nanostructure Interfaces“, Proceedings of the International Symposium Richmond, Va. 1999  
ed. P. Jena, S. Khanna, B. Rao World Scientific Publishing ( 2000), 249

---

1999

---

A.N. Lebedev, M. Gartz, U.Kreibig and O. Stenzel  
*Optical extinction by spherical particles in an absorbing medium: Application to composite absorbing films*  
Eur. Phys. J D 6. (1999) 365-373

A. Brysch, G. Bour, R. Neuendorf, U. Kreibig  
*Nonlinear Optical Spectroscopy of embedded Semiconductor Clusters*  
Appl.Phys.B-Lasers O 68: (3) (1999) 447-451

A. Heilmann, A. Kiesow, M. Gruner, U. Kreibig  
*Optical and Electrical Properties of embedded Silver Nanoparticles at low Temperatures*  
Thin Solid Films 343-344 (1999), 175-178

U. Kreibig, R. Neuendorf  
*Cluster-Materie - Die älteste und häufigste Form nanostrukturierter Materie*  
RWTH-Themen 1 - 1999 "Nanotechnologie - Das feine Kleine" (Pressestelle der RWTH) , S.40 - 43

U.Kreibig, G. Bour, A. Hilger, M. Gartz  
*Optical Properties of Cluster-Matter: Influences of Interfaces*  
phys.stat.sol. (a) 175 (1999), 351 - 366

B.Michel, Th.Henning, C. Jaeger, U. Kreibig  
*Optical Extinction by Spherical Carbonaceous Particles*  
Carbon 37 (1999), 391 - 400

M. Gartz, S. Kuenneke, U. Kreibig  
*Wasserstoffgetriebene Phasenumwandlungen in Yttrium-haltiger Cluster-Materie*  
Manuskript, Rügen

U. Kreibig, M. Gartz  
*Optical Plasmon Spectroscopy of Metal Cluster Surfaces*  
Nato-ASI

R. Neuendorf, U. Kreibig  
*Semiconductor Quantum dots with Metal Shells*  
Nato ASI

R. Neuendorf, A. Brysch, G. Bour, U. Kreibig  
*Optical Properties of II-VI Semiconductor Nanoparticles*  
Manuskript, Aachen

M.Gartz, C. Keutgen, S.Kuenneke, U. Kreibig  
*Novel Examples of Cluster-matter produced by LUCAS, a new Laser Cluster Source*  
Euro-Physics Journal D 9 (1999), 1 - 5

---

1998

---

A.Heilmann, P. Jutzi, A. Klipp, U. Kreibig, R. Neuendorf, T. Sawitowski, G. Schmid  
*Photoluminescent Siloxenes in Nanoporous Aluminum Oxide*

Adv. Materials 10 (1998) ,398-400

C.Schlebusch, B. Kessler, A. Hilger, C. Fröba, U. Kreibig  
*Photoemission from Ag-Clusters in a C<sub>60</sub> Matrix*  
Solid State Commun. 107 (1998), 277-279

**REVIEW-ARTICLE :**

U. Kreibig  
*Optische Spektroskopie an Cluster-Materie*  
in: Physik der Nanostrukturen (Schriften des Forschungszentrums Jülich-Materie und Material Bd 1)  
ed: W. Eberhardt (1998), D 7.1 - 7.34

**REVIEW-ARTICLE:**

U.Kreibig, M. Gartz, A. Hilger, H. Hövel  
*Optical Investigations of Surfaces and Interfaces of Metal Clusters*  
in: Advances in Metal and Semiconductor Clusters Vol IV (ed. M. Duncan) JAI press Inc. (1998), 345-393

T.Hanaoka, A. Heilmann, M. Kroll, H. Kormann, T. Sawitowski, G. Schmid, P. Jutzi, A. Klipp, U. Kreibig,  
R. Neuendorf  
*Alumina membranes - Templates for novel nanocomposites*  
Applied Organometallic Chemistry 12 (1998), 367-373

---

1997

---

G. Bour, R. Neuendorf, U. Kreibig  
*Size-dependent Exciton-Phonon-Coupling in Semiconductor Quantum-dots*  
Manuskript, Aachen 1997

G. Bour, A. Brysch, R. Neuendorf, U. Kreibig  
*Nonlinear Spectroscopy of Cluster-Matrix Systems*  
Manuskript, Aachen

**REVIEW-ARTICLE :**

U. Kreibig  
*Optics of Nanosized Metals*  
in "Handbook of Optical Properties Vol. II: Optics of Small Particles, Interfaces and Surfaces (ed. R. Hummel, P. Wissmann) CRS Press; (1997) 145-190

U.Kreibig, A. Hilger, M. Gartz  
*Mie Resonances : Sensors for Physical and Chemical Cluster Interface Properties*  
Ber. d. Bunsengesellsch. f. Phys. Chemie 101 (1997), 1593-1604

U. Kreibig  
*Surface and Interfaces of Clusters*  
ABSTR PAP AM CHEM S 213: 477-PHYS Part 2( 1997)

G. Reuter, M. Quinten, U. Kreibig  
*Photothermische Messungen an Systemen nanokristalliner Cluster*  
Manuskript, Aachen

H. Hövel , A. Hilger, I. Nusch, U. Kreibig  
*Experimental determination of deposition induced cluster deformation*  
Z Phys D Atom Mol CL 42: (3) (1997) 203-208

---

1996

---

U. Kreibig, M. Gartz, A. Hilger  
*Physical Characterization of Nanoparticle Interfaces*  
in "Preparation of Nanoparticles in Solids and Solutions" (ed. J. Fendler); (1996) 35-48

R. Neuendorf, M. Quinten, U. Kreibig  
*Optical Bistability of Small Heterogeneous Clusters*; J. Chem. Phys. 104,16 (1996) 6348-6354

A. Relitzki, A. Hilger, H. Hövel, U. Kreibig, D. Schumacher, H. Winkes  
*Deposition of Silver clusters on Silver Surfaces: Influences on the Electrical Resistance* in "Science and Technology of Atomically Engineered Materials" (ed. P. Jena) World Scientific; (1996) 453-458

U. Kreibig, A. Hilger, G. Schmid, C.G. Granqvist  
*Coulomb-Blockade-Limited Electrical Conductivity in Dense Au-Cluster-Matter* in: "Science and Technology of Atomically Engineered Materials" (ed. P. Jena) World Scientific; (1996) 435-440

U. Kreibig, M. Gartz, A. Hilger, H. Hövel  
*Surface Analysis by Cluster Plasmon Spectroscopy*; in "Science and Technology of Atomically Engineered Materials" (ed. P. Jena) World Scientific; (1996) 403-410

U. Kreibig, M. Gartz, A. Hilger, H. Hövel  
*Mie-Plasmon Spectroscopy: A Tool of Surface Science*  
in "Fine Particles Science and Technology" (ed. E. Pelizzetti), Kluwer (1996) , 499-516

U. Kreibig, A. Hilger, H. Hövel, M. Quinten  
*Optical Properties of free and embedded Metal Clusters: Recent Results*  
in "Large Clusters of Atoms and Molecules" (ed. T.P. Martin), Kluwer (1996), 475 - 494

T. Kahlau, M. Quinten, U. Kreibig  
*Extinction and Angle Resolved Light Scattering from Aggregated Metal Clusters*  
Appl. Phys. A 62, (1996),19-27

---

1995

---

**BOOK :**

U. Kreibig, M. Vollmer  
*Optical Properties of Metal Clusters*  
*Springer Series in Material Science* 25 (1995), 532 pages  
(Especially Au<sub>55</sub> – Clusters: pages 226-231; 249-251; 312; 353-358)

---

1994

---

**REVIEW-ARTICLE :**

U. Kreibig, M. Quinten  
*Electromagnetic Excitations in Large Clusters*; in: "Clusters of Atoms and Molecules"  
(ed. H. Haberland), 30 pages; *Springer Series in Chemical Physics* 56 (1994)

---

1993

---

H. Eckstein, U. Kreibig  
*Light induced Aggregation of Metal Clusters*; Zeitschrift f. Physik D 26 (1993), 239

M. Hermann, U. Kreibig, G. Schmid  
*The optical Extinction of Ligand stabilized Au13 and Au55-clusters: The vanishing of the Mie-resonance*  
Zeitschrift f. Physik D 26 (1993), S1

J. Sinzig, U. Radtke, M. Quinten, U. Kreibig  
*Binary Cluster: homogeneous Alloys and Nucleus-Shell Structures*; Zeitschrift f. Physik D 26, (1993), 242

M. Quinten, U. Kreibig  
*Absorption und Elastic Scattering of Light by Particle Aggregates*; Applied Optics 32 (1993), 6173

H. Hövel, S. Fritz, A. Hilger, U. Kreibig, M. Vollmer  
*Width of Cluster Plasmon Resonances: Bulk Dielectric Functions and Chemical Interface Damping*  
Phys. Rev. B48 (1993), 18178

## REVIEW-ARTICLE :

M. Vollmer, U. Kreibig

*Collective Excitations in Large Metal Clusters*

in: Nuclear Physics Concepts in the Study of Atomic Cluster Physics"

Eds. R. Schmidt, H.A. Lutz, D. Dreizler "Springer Lecture Notes in Physics 404", Springer (1992), 26

U. Kreibig

*Optical Properties of Macroscopic Many-Cluster-Matter*

"Physics and Chemistry of finite Systems: From Clusters to Crystals" (Richmond, USA, Oct. 1991)

Ed. P. Jena; S. Khanna; B. Rao Kluwer (1992), 867

D. Schönauer, H. Lauer, U. Kreibig

*Optical Extinction of Free, Supported and embedded Metal Clusters;* Zeitschrift f. Physik D20 (1991), 301

K. Fauth, U. Kreibig, G. Schmid

*Optical Plasmon Losses in Stabilized Au55-Clusters;* Zeitschrift f. Physik D20 (1991), 297

B. Dusemund, A. Hoffmann, T. Salzmann, U. Kreibig, G. Schmid

*Cluster Matter: The Transition of Optical Elastic Scattering to Regular Reflection*Zeitschrift f. Physik D20 (1991), 305

G. Goll, H. v.Löhneysen, U. Kreibig, G. Schmid

*Low Temperature Specific Heat of the Cluster Compound Au55(P(C<sub>6</sub>H<sub>5</sub>)<sub>3</sub>)12Cl<sub>6</sub>;*Zeitschrift f. Physik D20 (1991), 329

M. Quinten, I. Sander, P. Steiner, U. Kreibig, K. Fauth

*Photoemission on Gold-55 Clusters derived from Gold-Phosphines AuP(C<sub>6</sub>H<sub>5</sub>)<sub>3</sub>Cl*Zeitschrift f. Physik D20 (1991), 377

C. Becker, T. Fries, K. Wandelt, U. Kreibig, G. Schmid

*Scanning Tunneling Microscopy Investigation of Stabilized Au55-Clusters*J. Vac.Sci.Technol. B9 (1991), 810

U. Kreibig, K. Fauth, C.G. Granqvist, G. Schmid

*6-s electrons in Stabilized Au55-Clusters;* Z. Physikal. Chemie 169 (1990), 11

G. Schmid, A. Lehnert, U. Kreibig, Z. Adamczyk, P. Belouschek

*Synthese und elektronenmikroskopische Untersuchung kontrolliert gewachsener ligandstabilisierter Goldkolloide, sowie theoretische Überlegungen zur Oberflächenbelegung durch Kolloide*Z. Naturforschung 45 b (1990), 989

K. Fauth, U. Kreibig, G. Schmid

*Optical Properties of Systems Containing Au55-Clusters;* Zeitschrift f. Physik D12 (1989), 515 - 520

U. Kreibig, K. Fauth, M. Quinten, D. Schönauer

*Many-Cluster-Systems: Models of Inhomogeneous Matter*Z. Physik D 12 (1989), 505 - 514

M. Quinten, D. Schönauer, U. Kreibig

*Electronic Excitations in Many-Particle Systems: A Quantitative Analysis;* Z. f. Physik D12 (1989), 521 - 525

D. Schönauer, M. Quinten, U. Kreibig  
*Precursor States of Percolation in Quasi-Fractal Many-Particle Systems*; Z. f. Physik D12 (1989), 527 - 532

U. Kreibig  
*Many-Particle-Systems: Models of Inhomogeneous Matter*; Physica A157 (1989), 244 - 261

---

1988

---

G. Schmid, N. Klein, L. Korste, U. Kreibig, D. Schönauer  
*Large Transition Metal Clusters - VI. Ligand Exchange Reactions on Au<sub>55</sub>(PPh<sub>3</sub>)<sub>12</sub>Cl<sub>6</sub> - The Formation of Water Soluble Au<sub>55</sub> Clusters*; Polyhedron 7 (1988), 605 - 608

F. Hache, D. Ricard, C. Flytzanis, U. Kreibig  
*The Optical Kerr Effect in Small Metal Particles and Metal Colloids*; Applied Phys. A47 (1988), 347 - 357

U. Kreibig, B. Schmitz, H.D. Breuer  
*Separation of Plasmon Polariton Modes in Small Metal Particles*  
in: Hess, Pelzl "Photoacoustic and Photothermal Phenomena"; Springer, Berlin (1988), 217 - 220

---

1987

---

U. Kreibig, B. Schmitz, H.D. Breuer  
*Separation of Plasmon Polariton Modes in Small Metal Particles*; Phys. Rev. B36 (1987), 5027 - 5030

U. Kreibig, M. Quinten, D. Schönauer  
*Optical Investigations of Aggregation Processes in Aqueous Noble Metal Systems*  
Proceedings of the NASI "Time-dependent Effects in Disordered Materials", Geilo/Norwegen (1987)

M. Quinten, U. Kreibig  
*Optical Extinction Spectra of Systems of Small Metal Particles with Aggregates*  
Proceedings of the Int.Symp.on "Optical Particle Sizing: Theory and Practice" ed. A.Guesbet, B. Gréhan  
Rouen, France 1987, 249- 258

U. Radtke, K. Kantharli, U. Kreibig  
*The Optical Properties of Minute Gold-Silver Alloy Particles*;  
to be published

---

1986

---

M. Quinten, U. Kreibig  
*Optical Properties of Aggregates of Small Metal Particles*; Surface Science 172 (1986), 557 - 577

U. Kreibig  
*Systems of Small Metal Particles: Optical Properties and their Structure Dependences*  
Zeitschr. f. Physik D 3 (1986) and in "Metal Clusters", ed. F. Träger and G. zu Putlitz, Springer (1986)

U. Kreibig, M. Quinten, D. Schönauer  
*Optical Properties of Many-Particle Systems*; Physica Scripta T13 (1986), 84 - 92

**REVIEW-ARTICLE :**

U. Kreibig  
*Optical Properties of Small Particles in Insulating Matrices*  
Three lectures on the NATO-Advanced Study Institute "Impact of Cluster Physics in Materials Science and Technology" Agde/France (1982), 53 pages; Nijhoff, Dordrecht (1986)

---

1985

---

M. Quinten, U. Kreibig, D. Schönauer, L. Genzel  
*Optical Absorption Spectra of Pairs of Small Metal Particles*  
Surface Science 156, 741-750 (1985)

U. Kreibig, L. Genzel  
*Optical Absorption of Small Metallic Particles*    Surface Sci. 156, 678-700 (1985)

D. Schönauer, U. Kreibig  
*Topography of Samples with variably aggregated Metal Particles*  
Surface Sci. 156 (1985), 100 - 111

U. Kreibig, D. Andersson, G.A. Niklasson, C.G. Granqvist  
*Electroluminescence from Cermet Films*  
Thin Solid Films 125 (1985) 199 - 204

---

1984

---

U. Kreibig  
*Electromagnetic Resonances in Systems of Small Particles and S.E.R.S.*  
in "Dynamics of Surfaces" ed. by B. Pullman et al. Reidel (1984), 447 (13 pages)

U. Kreibig  
*Optical Properties of Small Particles in Insulating Matrices*  
in "Impact of Cluster Physics in Materials Science and Technology"  
Conference Reports, Agde / France (1984)

---

1981

---

U. Kreibig, H. Pressmann  
*Size Effects in the Optical s-Electron and Interband Transitions Excitations in Small Copper Particles*  
Surface Science 106 (1981), 318

U. Kreibig, P. Steiner, S. Hüfner  
*Spectroscopy of Small Noble Metal Aggregates* ; Conference Paper, 7 pages (1981)

U. Kreibig, A. Althoff, H. Pressmann  
*Veiling of Optical Single Particle Properties in Many Particle Systems by Effective Medium and Clustering Effects*  
Surface Science 106 (1981), 308 - 31

---

1980

---

F. Dünnebier, U. Kreibig, C. Wetter  
*Temperature Dependence of the Long Range Order Interaction and the Crystalline Structure of Tobacco Mosaic Virus Crystals* ; in preparation

U. Kreibig, C. Wetter  
*Light Diffraction of in Vitro Crystals of Six Tobacco Mosaic Viruses*  
Zeitschrift f. Naturforschung Section C, 35c (1980), 750 - 762

U. Kreibig  
*About a Structural Phase Transition in Minute Gold Particles Embedded in Glass Growth and Properties of Metal Clusters, Application to Catalysis and the Photographic Process*  
(Studies in Surface Science and Catalysis 4); Elsevier Sci. Publ. Comp. Amsterdam (1980), 371 - 378

L. Genzel, U. Kreibig  
*Dielectric Function and Infrared Absorption of Small Metal Particles*; Zeitschr. f. Physik B37 (1980), 93 – 101

U. Kreibig  
*Size Dependent Anomalies in the Optical Interband Absorption of Minute Gold Particles*  
Proc. Conf. on Optical Phenomena Peculiar to Matter of Small Dimensions Tucson (1980), 4 pages

---

1978

---

U. Kreibig

*Lattice Defects in Small Metallic Particles and their Influence on Size Effects*  
Zeitschr. f. Physik B31 (1978), 39 – 47

W. Buchheit, U. Kreibig, D. Müller, A. Voigt

*NMR of  $^{23}\text{Na}$  in Small Particles of Ferroelectric  $\text{NaNO}_2$* ; Zeitschrift f. Physik B32 (1978), 83 - 91

U. Kreibig

*The Transition Cluster - Solid State in Small Gold Particles*; Sol. State Commun 28 (1978), 767 – 769

---

1977

---

U. Kreibig

*Anomalous Frequency and Temperature Dependence of the Optical Absorption of Small Gold Particles*  
Journal de Physique (Paris) 38 (1977), C2-97-103

**HABILITATIONSSCHRIFT**

*Elektronische und Optische Eigenschaften von Edelmetall-Clustern und-Mikrostrukturen*

U. Kreibig

Saarbrücken (1977), 131 pages

T. Hollstein, U. Kreibig, H. Leis

*Optical Properties of Cu and Ag in the Intermediate Region between Pure Drude and Interband Absorption*  
Physica Status Solidi b 82 (1977), 545 - 556

T. Hollstein, U. Kreibig, H. Leis

*Optical Properties of Au and Al in the Visible, Determined at 300 K and 1.5 K*  
Physica Status Solidi b 83 (1977), K49 - 53

W. Kaspar, U. Kreibig

*Surface Structure Influences on the Absorptance of Thick Silver Films*  
Surface Science 69 (1977), 619 – 636

---

1976

---

U. Kreibig

*Small Silver Particles in Photosensitive Glass: Their Nucleation and Growth* Applied Physics 10 (1976), 255 - 264

---

1975

---

L. Genzel, T.P. Martin, U. Kreibig

*Dielectric Function and Plasma Resonances of Small Metal Particles*; Z. f. Physik B21 (1975), 339 - 346

---

1974

---

**DISSERTATION**

U. Kreibig

*Untersuchungen zum Einfluß der Größe von Edelmetall-Mikrokristalliten auf die optischen Materialkonstanten im Bereich der Kugel-Plasma-Resonanz*  
Saarbrücken 1971, 130 pages

---

1971

---

U. Kreibig

*Electronic Properties of Small Silver Particles: The Optical Constants and their Temperature Dependence*

Journal of Physics F: Metal Physics 4 (1974), 999 - 1014

---

1970

U. Kreibig, P. Zacharias

*Surface Plasma Resonances in Small Spherical Silver and Gold Particles; Z. f. Physik* 231 (1970), 128 - 143

U. Kreibig

*Kramers Kronig Analysis of the Optical Properties of Small Silver Particles; Z. f. Physik* 234 (1970), 307 - 318

---

1969

U. Kreibig, C.v.Fragstein

*The Limitation of Electron Mean Free Path in Small Silver Particles; Zeitschr. f. Physik* 224 (1969), 307 - 323

---

1966

C.v.Fragstein (+ U. Kreibig)

*Das optische Verhalten kolloidal verteilter Teilchen in wässrigen Suspensionen und in Gläsern*

Richard-Zsigmondy-Symposium

Nachrichten der Akademie der Wissenschaften in Göttingen, II. Mathematisch-Physikalische Klasse,  
Jahrgang 1966; Vandenhoeck & Ruprecht, Göttingen (1966), 83-103

---

## PART B : PUBLICATIONS CONCERNING DIDACTICS

---

### TEXTBOOK :

"*Physik für Mediziner, Biologen, Pharmazeuten*",

de Gruyter, Berlin 550 pages,

Authors: A. Trautwein, U. Kreibig, E. Oberhausen;

1st ed. 1977; 2nd ed. 1978; 3rd ed. 1981/82; 4th ed. 1986, reprints 1988, 1990, 1992, 1994, 1995, 1996, 1997;

5th ed. 2000 (additional author: J. Hüttermann);

Authors: A. Trautwein, U. Kreibig, J. Hüttermann: 6th edition 2004; 7th edition 2008, 8th edition 2014

U.Kreibig, H.Schmitt (editors) *Physikalisches Praktikum für Physiker Teil I* (Uni Saarbrücken,1984, 1985), 115 p.

U.Kreibig, H.Schmitt (editors) *Physikalisches Praktikum für Physiker Teil II* (Uni Saarbrücken,1983, 1985), 100 p.

U. Kreibig, H. Schmitt (editors) *Physikalisches Grundpraktikum Teil 3, Ergänzungskurs für Physiker* ;  
(Uni Saarbrücken,1978, 80, 85), 100 p.

U. Kreibig, H. Schmitt (editors) *Physikalisches Grundpraktikum Teil 2 (E.-Lehre, Optik)* ;  
(Uni Saarbrücken,1975, 76, 80, 82), 117 p.

J. Helwig, U. Kreibig, H. Schmitt (editors) *Einsemestriges Physikalisches Praktikum für Naturwissenschaftler* ;  
(Uni Saarbrücken,1977, 1979, 1982), 100 p.

U. Kreibig, H. Schmitt (editors) *Physikalisches Grundpraktikum Teil 1 (Mechanik, Wärme, Radioaktivität)* ;  
(Uni Saarbrücken,1975, 77, 78, 82), 98 p.

U. Kreibig, H. Schmitt (editors) *Physikalisches Praktikum für Elektrotechniker* (Uni Saarbrücken, 1982), 120 p.

U. Kreibig, R. Kunkel *Physikalisches Praktikum für Mediziner*, eds. (Uni Saarbrücken, 1972, 73, 74), 110 p.

W. Behmenburg, U. Kreibig *Anleitungen zum Physikalischen Anfängerpraktikum*, 2.ed. (Uni Saarbrücken, 1967), 166p.

W. Behmenburg, U. Kreibig (editors) *Anleitungen zum Physikalischen Anfängerpraktikum*, 1. ed.  
(Uni Saarbrücken, 1964), 107 p.

---

-finis-