

9 Anhang

9.1 Abkürzungen

| | |
|---------------|--|
| 1D | 1-dimensional |
| 3D | 3-dimensional |
| AES | Auger-Elektronen-Spektroskopie |
| AFM | Atomic Force Microscope |
| DA/AD-Wandler | Digital/Analog- / Analog/Digital-Wandler |
| DSP | Digitaler Signal-Prozessor |
| fcc | Face Centred Cubic |
| FIM | Feld-Ionen-Mikroskopie |
| hcp | Hexagonal Close Packed |
| HOPG | Highly Oriented Pyrolytic Graphite |
| HREELS | High-Resolution Electron Energy Loss Spectroscopy |
| HTML | HyperText Markup Language |
| LEED | Low-Energy Electron Diffraction |
| LEIS | Low-Energy Ion Scattering |
| MR | Missing Row |
| MS-DOS | Microsoft Disk Operating System |
| RHEED | Reflection High-Energy Electron Diffraction |
| STM | Scanning Tunneling Microscope |
| TOF-SARS | Time-of-Flight Scattering and Recoiling Spectrometry |
| UHV | Ultrahochvakuum |
| Windows NT | Windows New Technology |

WebElements: the periodic table on the world-wide web

<http://www.webelements.com/>

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|--|---|---|--|--|--|---|----|----|----|----|----|----|----|----|----|
| hydrogen 1 H 1.00794(7) lithium 3 Li 6.941(2) sodium 11 Na 22.989770(2) potassium 19 K 39.0983(1) rubidium 37 Rb 87.9678(1) cesium 55 Cs 132.95545(2) francium 87 Fr 122.019(7) | beryllium 4 Be 9.012182(3) magnesium 12 Mg 24.3050(6) calcium 20 Ca 40.078(4) strontium 38 Sr 87.962(1) barium 56 Ba 174.967(1) lanthanum 88 Ra 122.027(7) | scandium 21 Sc 44.00010(8) yttrium 39 Y 88.9055(2) lutetium 71 Lu 178.949(1) rutherfordium 103 Rf 1262.114(1) | titanium 22 Ti 47.867(1) zirconium 40 Zr 91.964(2) hafnium 72 Hf 178.949(1) tantalum 73 Ta 183.947(1) niobium 104 Nb 186.9838(2) dubnium 105 Ds 1264.1144(1) | chromium 23 V 50.9415(6) manganese 24 Cr 54.9380(9) molybdenum 41 Mo 96.941(1) tungsten 74 Tc 97.907(2) osmium 75 Ru 108.978(2) seaborgium 106 Sg 126.134(1) | vanadium 25 Mn 51.98613(6) ruthenium 42 Ru 97.907(2) rhodium 43 Pd 106.421(1) platinum 77 Rh 108.421(1) iridium 76 Pt 109.978(2) bohrium 107 Au 120.592(2) meitnerium 108 Os 123.217(3) hassium 109 Hs 126.134(1) | cobalt 26 Fe 55.845(2) nickel 27 Co 58.03200(9) chromium 44 Ni 59.546(3) copper 28 Cu 63.546(3) nickel 29 Ni 65.546(3) cobalt 30 Co 66.546(3) nickel 31 Cu 67.546(3) copper 32 Co 68.546(3) nickel 33 Cu 69.546(3) copper 34 Co 70.546(3) nickel 35 Cu 71.546(3) | zinc 29 Zn 65.4320(3) gallium 30 Al 26.981538(2) germanium 31 Ge 74.92160(2) indium 32 Ge 75.92160(2) germanium 33 Ge 77.92160(2) indium 34 Ge 78.92160(2) germanium 35 Ge 79.92160(2) indium 36 Ge 80.92160(2) | helium 2 He 4.00260(2) neon 10 Ne 18.9894(3) argon 18 Ar 36.91947(9) krypton 18 Kr 39.91947(1) | | | | | | | | | |
| Key: element name atomic symbol 1997 atomic weight (mean relative mass) | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|--|--|--|--|---|--|---|---|--|--|
| lanthanum 57 La 138.9055(2) | cerium 58 Ce 140.16(1) | praseodymium 59 Pr 140.30765(2) | neodymium 60 Nd 144.24(3) | europium 61 Pm 144.9127(1) | samarium 62 Sm 149.36(3) | gadolinium 64 Gd 151.96(1) | terbium 65 Tb 157.25(3) | dysprosium 66 Dy 168.92534(2) | holmium 67 Ho 162.5(3) | erbium 68 Er 164.89303(2) | thulium 69 Tm 167.26(3) | yterbium 70 Yb 168.9342(2) | ytterbium 102 Md 173.04(3) |
| actinium 89 Ac 122.027(7) | thorium 90 Th 1262.114(1) | protactinium 91 Pa 123.03589(2) | uranium 92 U 123.03589(1) | neptunium 93 Np 123.03589(2) | neptunium 94 Pu 123.03589(1) | curium 95 Cm 123.03589(1) | berkelium 96 Bk 123.03589(1) | californium 97 Cf 124.036(1) | einsteinium 98 Es 124.036(1) | fermium 99 Fm 125.036(1) | mendelevium 100 Md 126.036(1) | nobelium 101 No 127.036(1) | |

*lanthanoids
**actinoids
 Element symbols and names, symbols, names, and spellings are those recommended by IUPAC. After controversy, the names of elements 101–105 are now confirmed (Pure & Appl. Chem., 1997, **69**, 2471–2473). In the USA and some other countries, these spellings and names are normal while in the UK and elsewhere the usual spelling is subbarium. These elements thorium, protactinium, curium, berkelium, californium, einsteinium, mendelevium, nobelium, and lawrencium are characterized as transuranic elements, that is, they are the products of nuclear fission of uranium and plutonium and are thus radioactive. Thorium and protactinium are also called actinides. Thorium and protactinium are the first two elements in Group 3 of the IUPAC system (1–18), their name is the current IUPAC nomenclature. For a discussion of this and other common systems see W.C. Jensen and W.H. Powell, "Confusion in the Periodic Table of the Elements", J. Chem. Ed., 1982, **59**, 504–506. ©2009 Dr. Mark J. Winter (WebElements Ltd and University of Sheffield) All rights reserved. For updates to this table see <http://www.webelements.com/webelements/elements/media/pdf/>. Version date: 24 October 2009.

9.2 Symbole

| | |
|-------|------------------|
| a | Gitterkonstante |
| h | Monostufenhöhe |
| E_F | Fermi-Energie |
| I_T | Tunnelstrom |
| T_M | Schmelzpunkt |
| T_R | Aufrautemperatur |
| U_T | Tunnelspannung |

9.3 Eigenschaften der untersuchten Systeme

| | Ag | Au | Pt | Ir | Si |
|------------------|----------------|-------------------|--------------------|---|----------------------|
| T_M / K | 1234,45 | 1336 | 2042 | 2727 | 1696 |
| T_R / K | 790 bis 990 | 670 | 950 | ./. | (001): 1220 bis 1350 |
| a / nm | 0,409 | 0,408 | 0,392 | 0,384 | 0,543 |
| Raumgitter | fcc | fcc | fcc | fcc | Diamant |
| (111) | (1 \times 1) | FG | (1 \times 1), FG | (1 \times 1) | (7 \times 7) |
| (001) | (1 \times 1) | c(26 \times 68) | hex | (1 \times 5)-hex | (2 \times 1) |
| (110) | (1 \times 1) | (1 \times 2)-MR | (1 \times 2)-MR | (1 \times 2)-MR, (1 \times 3)/(1 \times 1), {331} | ./. |

Tabelle 9.1: Übersicht über einige typische Eigenschaften und Konfigurationen der 5d Übergangsmetalle, sowie Ag und Si (siehe Text). T_M : Schmelzpunkt; T_R : Aufrautemperatur; a : Gitterkonstante bei 273 K [192]; FG: „Fischgräten“-Überstruktur.

