

Residual Resistance of Gold with Different Impurities





Temperature Dependence of Electrical Conductivity





Normal Processes in Reduced Zone Scheme





Umklapp-Process in Reduced Zone Scheme





Wave vector k_x

Electrical Resistance of Different Metals





Reduced Temperature T / Θ

Evidence for Electron-Electron Scattering





Thermal Conductivity of Copper





Temperature T / K



Comparison of Electrical and Thermal Conductivity of Copper















Thermal Conductivity of Different Metals





Discovery of Superconductivity



23 May 1911











Discovery of Superconductivity





Discovery of Superconductivity





Elements Showing Superconductivity



¹ H			2	supero	condu	icting	@ p	= 1 ba	ır								² He
³ Li 20	⁴ Be 0.03 superconducting @p >> 1 bar non-superconducting												€C	⁷ N	⁸ O 0.6	9F	¹⁰ Ne
¹¹ Na	¹² Mg		magnetic ordering											¹⁵ P 18	¹⁶ S 17	¹⁷ Cl	¹⁸ Ar
¹⁹ K	²⁰ Ca 15	²¹ Sc 0.35	²² Ti 0.4	²³ V 5.3	²⁴ Cr	²⁵ Mn	²⁶ Fe 2.0	²⁷ Co	²⁸ Ni	²⁹ Cu	³⁰ Zn 0.9	³¹ Ga 1.09	³² Ge 5.4	³³ As 2.7	³⁴ Se 5.6	³⁵ Br 1.4	³⁶ Kr
³⁷ Rb	³⁸ Sr 4.0	³⁹ ү 2.7	⁴⁰ Zr 0.55	⁴¹ Nb 9.2	⁴² Mo 0.923	⁴³ Tc 7.8	⁴⁴ Ru 0.5	⁴⁵ Rh 320 μK	⁴⁶ Pd	47Ag	⁴⁸ Cd 0.55	⁴⁹ In 3.4	⁵⁰ Sn 3.7	⁵¹ Sb 5.6	⁵² Te 7.4	⁵³ 1.1	⁵⁴ Xe
⁵⁵ Cs	⁵⁶ Ba 5.1	⁵⁷ La 5.9	⁷² Hf 0.16	⁷³ Ta 4.4	⁷⁴ W 0.01	⁷⁵ Re 1.7	⁷⁶ Os 0.65	⁷⁷ lr 0.14	⁷⁸ Pt	⁷⁹ Au	⁸⁰ Hg 4.15	⁸¹ TI 2.4	⁸² Pb 7.2	⁸³ Bi 8.7	⁸⁴ Po	⁸⁵ At	⁸⁶ Pn
⁸⁷ Fr	⁸⁸ Ra	⁸⁹ Ac	***	⁵⁸ Ce 1.7	⁵⁹ Pr	⁶⁰ Nd	⁶¹ Pm	⁶² Sm	⁶³ Eu	⁶⁴ Gd	⁶⁵ Tb	⁶⁶ Dy	⁶⁷ Ho	⁶⁸ Er	⁶⁹ Tm	⁷⁰ Yb	⁷¹ Lu 0.1
			· · · · ·	⁹⁰ Th 1.37	⁹¹ Pa 1.3	⁹² U 0.2	⁹³ Np	⁹⁴ Pu	⁹⁵ Am 0.8	⁹⁶ Cm	⁹⁷ Bk	98Cf	⁹⁹ Es	¹⁰⁰ Fm	¹⁰¹ Md	¹⁰² No	¹⁰³ Lw

Timeline of the Discovery of Superconductors







WS 22/23 Critical Field of Type I SC as a Function of Temperature



Comparison: Superconductors – Ideal Conductor







Superconducting Torus in Magnetic Field





Critical Field of Type II Superconductors





Abrikosov Lattices



NbSe₂





6000 Å

Details of a Abrikosov Lattice





STM Image



Magneto-optical Imaging of Vortices







Penetration of Magnetic Flux in Type Two Superconductors





Specific Heat of Aluminum















