Subject Matter Categories for Physical Review B
(Revised January 2005)

Principal subjects are listed with examples of specific topics as guides for sectioning. Comments on the sectioning scheme in general are welcome. Authors are encouraged to suggest in the letter of submittal the most appropriate section for their manuscripts. The list of specific topics is by no means exhaustive and there is redundancy under some topics to accommodate papers that could appear in more than one area. Papers with an emphasis on such topics as chemical or statistical physics, but which are of interest to condensed-matter and materials physicists, will be assigned to the appropriate section.

B1:

1. Structure, structural phase transitions, mechanical properties, defects: new phases, high-pressure physics, defect structures, order-disorder transitions, ferroelectricity, structural probes and spectroscopy, irradiation, emission and impact effects.

2. Inhomogeneous, disordered, and partially ordered systems: positional and compositional disorder, quasicrystals, alloys, glasses, liquids, polymeric structures.

3. Dynamics, dynamical systems, lattice effects, quantum solids: phonons, polarons, impurity dynamics, nonlinear systems, percolation, Raman effect, nonelectronic thermal and transport properties.

4. Magnetism: magnetic resonance, transition-metal, lanthanide, and actinide magnetism, magnetic phase transitions, magnetism in disordered systems, spin glasses, spin-lattice models, Kondo effect, heavy-electron systems, surface and interface magnetism, magnetoresistance.

5. Superfluidity and superconductivity: helium 3 and 4, helium films, organic superconductors, superconducting materials and properties, high-temperature superconductivity, tunneling and tunnel junctions, heavy-electron systems, superconducting glasses, strong-coupling models.

B15:

1. Electronic structure: wide-band, narrow-band, and strongly correlated systems: thermodynamic functions, electronic-transport, thermal, linear and nonlinear optical properties, density-functional theory, charge-density waves, insulators and dielectrics, metal-insulator transition, intermediate and fluctuating valence, heavy electrons, Hubbard models, photonic crystals.

2. Semiconductors I: bulk: transport properties, deep and shallow levels, defects, hot electrons, electronic structure, amorphous semiconductors, magnetic semiconductors, polymers.

3. Semiconductors II: surfaces, interfaces, microstructures, and related topics: bonding, reconstruction, metal-semiconductor interfaces, band offsets, quantum Hall effect, inversion layers and 2D electron gas, heterostructures, quantum wells, quantum dots, optical, tunneling, and transport properties, device physics, mesoscopic systems.

4. Surface physics, nanoscale physics, low-dimensional systems: surface structure, surface probes, various spectroscopies, interfaces, surface electronic structure and bonding, surface dynamics, interactions on surfaces, layered systems, metallic superlattices, fullerenes, clusters, few-atom systems, thin films, nanotubes.