

- 100 **HIGH TEMPERATURE (TC GREATER THAN 30 K) SUPERCONDUCTOR MATERIAL (I.E., ELEMENT, COMPOUND, OR COMPOSITION), PER SE**
- 110 .Having Tc greater than or equal to 150 K
- 120 .Thallium (Tl) containing
- 121 .Bismuth (Bi) containing
- 122 .Organic polymer containing
- 123 .Halogen [i.e., fluorine (F), chlorine (Cl), bromine (Br), iodine (I), astatine (At)] containing
- 124 .Free metal containing
- 125 .Copper (Cu) and oxygen (O) containing
- 126 ..Containing three atoms of copper to between six and seven atoms of oxygen [e.g., YCu₃O(7- θ), LaCu₃O(6+*)], etc.]
- 150 **HIGH TEMPERATURE (TC GREATER THAN 30 K) DEVICES, SYSTEMS, APPARATUS, COMPONENTS, OR STOCK, OR PROCESSES OF USING**
- 160 .Measuring or testing system or device
- 161 ..Bolometer
- 162 ..Magnetic field sensing system or device (e.g., SQUID, etc.)
- 163 .Significant cryogenic refrigeration system having superconductor component as part of the system or having superconductor device or material to be cooled present therewith (e.g., Peltier effect device, etc.)
- 164 .Projectile or launching device or system
- 165 .System, device, or component utilizing suspension of superconducting particulate material in liquid (e.g., seal, pump, etc.)
- 166 .Dynamoelectric machine (e.g., motor, generator, etc.), rotational system or device (e.g., clutch, rotor, bearing, etc.), or components thereof
- 170 .Information processing (e.g., logic circuits, computer, etc.) or information storage or retrieval system, device, or component (i.e., both dynamic and static)
- 171 ..Recording by magnetism, magnetic record carriers, or recording head arrangements
- 180 .Device producing stimulated emission (e.g., laser, maser, etc.)
- 181 .Photoconductive, light transmissive, light emissive, or light responsive device or component
- 182 ..Device or arrangement the operation of which is modified by changing optical properties (e.g., reflectivity, transmission, etc.) of superconductive material
- 183 ..Having optical waveguide
- 190 .Josephson junction, per se (e.g., point contact, bridge, barrier junction, SIS, SNS, SSS, etc.) or Josephson junction with only terminals or connect
- 191 .Semiconductor thin film device or thin film electric solid-state device or system (i.e., active or passive)
- 192 ..Capacitor or including capacitor
- 193 ..Superconducting transistor (e.g., Josephson transistor, etc.)
- 200 .Electric discharge tube
- 201 .Antenna
- 202 .Electric communication system containing transmitter or receiver of pulse, digital, or electromagnetic radio, television, or radar wave form
- 203 .Electroacoustic transducer
- 204 .Device or system with electronic circuitry for generation of oscillations
- 210 .High frequency waveguides, resonators, electrical networks, or other devices of the waveguide type (e.g., phase shifters, cavity filters, etc.)

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| 211 | .Electrical energy storage device (e.g., accumulator, etc.), inductor, transformer, magnetic switch, magnetic ring, sphere, coil, or magnetic arrangement | 320 | .Producing lattice imperfection flux pinning sites or increasing critical current density through particle bombardment, electromagnetic wave energy, or using fissionable material |
| 212 | ..Truncated hollow spherical or truncated cylindrical flux source bodies (e.g., magic hemisphere, magic half-ring, etc.) | 325 | .Utilizing particle (e.g., electron beam, ion, etc.) bombardment or electromagnetic wave energy (e.g., laser, etc.) treatment of selected regions to form conducting or insulating areas |
| 213 | ..Noncoiled hollow magnetic arrangement | 329 | .Producing Josephson junction, per se (e.g., point contact, bridge, barrier junction, SIS, SNS, SSS, etc.) |
| 220 | .Superconductor having metal connect, pad, connect structure, or patterned superconductor circuit, per se | 330 | .Semiconductor device or thin film electric solid-state device manufacture |
| 230 | .Superconducting wire, tape, cable, or fiber, per se | 400 | .Using magnetic field (e.g., for aligning, texturizing, classifying, etc.) |
| 231 | ..Having plural superconducting wire or superconducting fiber component (e.g., multifilament wire, etc.) | 401 | .Using sonic, ultrasonic, or vibrational energy (e.g., shock processing, vibration compacting, etc.) |
| 232 | ..Having nonsuperconducting core | 410 | .With material removal by etching, laser ablation, or mechanical abrasion |
| 233 | .Superconducting layer and organic or free carbon layer (i.e., adjacent or nonadjacent to superconductor) | 411 | ..Utilizing plasma etching or sputter etching |
| 234 | .Superconductor next to superconductor | 412 | ..Laser ablation |
| 235 | .Superconductor layer and one semiconducting or silicon (Si) layer | 413 | ..Utilizing mask (e.g., photoresist, etc.) |
| 236 | .Superconductor layer next to free metal containing layer | 420 | .With glass forming, working, or treating |
| 237 | .Superconductor next to two or more nonsuperconductive layers | 425 | .Producing powder or short fiber (i.e., less than 15 cm) by spraying, dropping, or slinging of solution, suspension, or melt (e.g., spray-drying, atomizing, etc.) |
| 238 | .Superconductor next to layer containing nonsuperconducting ceramic composition or inorganic compound (e.g., metal oxide, metal nitride, etc.) | 430 | .Process of making wire, tape, cable, coil, or fiber |
| 239 | .Substrate for supporting superconductor | 431 | ..Making multifilament |
| 300 | PROCESSES OF PRODUCING OR TREATING HIGH TEMPERATURE (TC GREATER THAN 30 K) SUPERCONDUCTOR MATERIAL OR SUPERCONDUCTOR CONTAINING PRODUCTS OR PRECURSORS THEREOF | 432 | ..Isostatic pressing (e.g., HIP, hydrostatic pressing, etc.) |
| 310 | .With measuring or testing of superconducting properties | 433 | ..With metal deforming, metal wrapping, or metal coiling |
| | | 434 | ..With coating |
| | | 440 | .Utilizing sol or gel |
| | | 441 | .With precipitating from solution |

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| 445 | .Using an organometallic intermediate (e.g., ligand, chelate, clathrate, etc.) | 512 | ..Organometallic (e.g., ligand, clathrate, oxalate, etc.) |
| 446 | ..Including coating step | | |
| 447 | ...Vapor deposition | | |
| 450 | .With melting | | |
| 451 | ..With zone melting, zone solidification, or seed pulling | | |
| 452 | ..And coating or impregnating with melt | 700 | HIGH TC (ABOVE 30 K) SUPERCONDUCTING DEVICE, ARTICLE, OR STRUCTURED STOCK |
| 460 | .Producing fullerene (i.e., C60) type superconductor or analog thereof | 701 | .Coated or thin film device (i.e., active or passive) |
| 461 | .Producing halogen [i.e., fluorine (F1), chlorine (Cl), bromine (Br), or astatine (At)], containing superconductor | 702 | ..Josephson junction present |
| 470 | .Coating | 703 | ..Microelectronic device with superconducting conduction line |
| 471 | ..Printing (e.g., screen printing, etc.) or application with solid coating means | 704 | .Wire, fiber, or cable |
| 472 | ..Electrolytic or electrophoretic coating | 705 | ..Magnetic coil |
| 473 | ..Vapor deposition | 706 | .Contact pads or leads bonded to superconductor |
| 474 | ...Laser evaporative (i.e., ablative) coating | 725 | PROCESS OF MAKING OR TREATING HIGH TC (ABOVE 30 K) SUPERCONDUCTING SHAPED MATERIAL, ARTICLE, OR DEVICE |
| 475 | ...Sputtering | 726 | .Measuring or testing of superconducting property |
| 476 | ...RF sputtering (e.g., 13.56 MHz, etc.) | 727 | .Using magnetic field |
| 477 | ...Using plasma | 728 | .Etching |
| 480 | .Utilizing electromagnetic wave energy, ion, or plasma | 729 | .Growing single crystal (e.g., epitaxy, bulk) |
| 481 | .Including exothermic reaction or ignition of binder | 730 | .Vacuum treating or coating |
| 482 | .Treating with high pressure oxygen | 731 | ..Sputter coating |
| 483 | .Utilizing fluid bed | 732 | ..Evaporative coating with superconducting material |
| 490 | .Shaping or consolidating (e.g., pelletizing, compacting, etc.) | 733 | .Rapid solidification (e.g., quenching, gas-atomizing, melt-spinning, roller-quenching) |
| 491 | ..Utilizing isostatic pressure (e.g., HIP, etc.) or specified pressure | 734 | .From organometallic precursors (e.g., acetylacetonates) |
| 492 | ..Bismuth (Bi) or thallium (Tl) containing | 735 | ..By sol-gel process |
| 500 | .Heating, annealing, or sintering | 736 | .From free metal precursors |
| 501 | ..Bismuth (Bi) or thallium (Tl) containing | 737 | .From inorganic salt precursors (e.g., nitrates) |
| 510 | PRECURSOR OF HIGH TEMPERATURE (TC GREATER THAN 30 K) SUPERCONDUCTOR MATERIAL OR STOCK, PER SE, OR PROCESS OF PRODUCING THE PRECURSOR | 738 | ..By precipitating |
| 511 | .Target for coating | 739 | .Molding, coating, shaping, or casting of superconducting material |
| | | 740 | ..To form wire or fiber |
| | | 741 | ..Coating or casting onto a substrate (e.g., screen printing, tape casting) |
| | | 742 | .Annealing |

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| 775 | HIGH TC (ABOVE 30 K) SUPERCONDUCTING MATERIAL | 801 | .Composition: (Classes 75, 252, 501) |
| 776 | .Containing transition metal oxide with rare earth or alkaline earth | 802 | ..Organic |
| 777 | ..Lanthanum (La)-(e.g., La ₂ CuO ₄) | 803 | ..Magnetic |
| 778 | ...Alkaline earth (i.e., Ca, Sr, Ba, Ra)- [e.g., La(2- x)Ba(x)CuO ₄] | 804 | ..Amorphous alloy |
| 779 | ..Other rare earth (i.e., Sc, Y, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, D y, Ho, Er, Tm, Yb, Lu) and alkaline earth (i.e., Ca, Sr, Ba, Ra) | 805 | ..Alloy or metallic: (Class 420,420/901) |
| 780 | ...Yttrium(Y) and barium(Ba)- (e.g., YBa ₂ Cu ₃ O ₇) | 806 | ...Niobium base (Nb) |
| 781 | ...Noble metal (i.e., Ag, Au, Os, Ir, Pt, Ru, Rh, Pd) or chromium(Cr), manganese(Mn), iron(Fe), cobalt(Co), or nickel(Ni)-[e.g., YBa ₂ Cu(3- x)Fe(x)O(y)] | 807 | ..Powder: (Class 75) |
| 782 | ..Bismuth(Bi)-(e.g., BiCaSrCuO) | 808 | ..Liquid crystal: (Class 252) |
| 783 | ..Thallium(Tl)-(e.g., Tl ₂ CaBaCu ₃ O ₈) | 809 | ..Ceramic: (Class 501) |
| 784 | .Bismuth(Bi)-(e.g., BaKBiO) | 810 | .Compound: (Class 423) |
| 785 | .Composition containing superconducting material and diverse nonsuperconducting material | 811 | ..Organic: (Classes 520-570) |
| 950 | MANUFACTURING SYSTEM OR APPARATUS FOR MAKING HIGH TEMPERATURE (I.E., TC GREATER THAN 30 K) SUPERCONDUCTOR PRODUCT, DEVICE, ARTICLE OR STOCK (I.E., WHICH SYSTEM OR APPARATUS DOES NOT ITSELF CONTAIN A SUPERCONDUCTING COMPONENT) | 812 | .Stock: (Class 428, 428/930) |
| 951 | NPL PLUS FP HIGH TEMPERATURE (TC GREATER THAN 30 K) SUPERCONDUCTOR: MATERIAL (I.E., ELEMENT, COMPOUND, OR COMPOSITION) DEVICES, SYSTEMS, APPARATUS, COMPONENTS, STOCK, PROCESSES OF USING SAME, OR PROCESSES OF PRODUCING OR TREATING HIGH TEMPERATURE (TC GREATER THAN 30 K) SUPERCONDUCTOR MATERIAL OR SUPERCONDUCTOR CONTAINING PRODUCTS OR PRECURSORS THEREOF | 813 | ..Wire, tape, or film |
| | B. INVOLVING LOW TEMPERATURE SUPERCONDUCTORS (TC AT OR BELOW 30 K) | 814 | ..Treated metal: (Class 148/400+) |
| 800 | MATERIAL, PER SE, PROCESS OF MAKING SAME | 815 | .Process of making, per se |
| | | 816 | ..Sputtering, including coating, forming, or etching (Class 204/192.24) |
| | | 817 | ...Forming Josephson element |
| | | 818 | ..Coating: (Classes 204, 427/62) |
| | | 819 | ...Vapor deposition |
| | | 820 | ...And etching |
| | | 821 | ...Wire |
| | | 822 | ..Shaping: (Classes 148, 264) |
| | | 823 | ..Powder metallurgy: (Class 419) |
| | | 824 | ..Battery, thermo or photo- electric: (Class 136) |
| | | 825 | APPARATUS, PER SE, DEVICE, PER SE, OR PROCESS OF MAKING OR OPERATING SAME |
| | | 826 | .Coating: (Class 118) |
| | | 827 | .Code converter: (Class 340) |
| | | 828 | .Modulator: (Class 332), demodulator, or detector: (Class 329) |
| | | 829 | .Electrical computer or data processing system (Class 364) |
| | | 830 | .Electrical pulse counter, pulse divider, or shift register: (Class 377) |
| | | 831 | .Static information storage system or device: (Class 365, 365/160) |
| | | 832 | ..Josephson junction type: (Class 365/162) |
| | | 833 | ..Thin film type: (Class 365/161) |
| | | 834 | ...Plural (e.g., memory matrix, etc.): (Class 365/161) |
| | | 835 | ...Content addressed (i.e., associative memory type): (Class 365/49, 161) |

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| 836 |Location addressed (i.e., word organized memory type): (Class 365/161) | 861 |With Josephson junction: (Class 307/245) |
| 837 |Random access (i.e., bit organized memory type): (Class 365/161) | 862 |With thin film device: (Class 307/245) |
| 838 | ..Plural (e.g., memory matrix, etc.): (Class 365/160) | 863 | ...Stable state circuit for signal shaping, converting, or generating: (Class 307/277) |
| 839 | ..Content addressed (i.e., associative memory type): (Class 365/160) | 864 |With Josephson junction: (Class 307/277) |
| 840 | ...Location addressed (i.e., word organized memory type): (Class 365/160) | 865 | ...With Josephson junction: (Class 307/306) |
| 841 | ...Random access (i.e., bit organized memory type): (Class 365/160) | 866 | .Wave transmission line, network, waveguide, or microwave storage device: (Class 333/99S) |
| 842 | .Measuring and testing: (Classes 73, 324, 356, and 374) | 867 | .Electric power conversion system: (Class 363) |
| 843 | ..Electrical: (Class 324) | 868 | ..Current conversion: (Class 363/14) |
| 844 | ...Nuclear magnetic resonance (NMR) system or device: (Class 324) | 869 | .Power supply, regulation, or energy storage system: (Class 323) |
| 845 | ...Magnetometer: (Class 324/248) | 870 | ..Including transformer or inductor: (Class 323/360) |
| 846 |Using superconductive quantum interference device (i.e., SQUID): (Class 324/248) | 871 | .Magnetic lens: (Class 250/396) |
| 847 | ..Thermal: (Class 374) | 872 | .Magnetic field shield: (Class 307/91) |
| 848 | .Radiant energy application: (Class 250) | 873 | .Active solid-state device: (Class 257) |
| 849 | ..Infrared responsive electric signaling: (Class 250/338+) | 874 | ..With Josephson junction (e.g., SQUID, etc.): (Class 257) |
| 850 | .Protective circuit: (Class 361/19) | 875 | ..Combined with housing and cryogenic fluid cooling: (Class 257) |
| 851 | .Control circuit for electromagnetic device: (Class 361/141) | 876 | .Electrical generator or motor structure: (Class 310) |
| 852 | .Electric motor control: (Class 318) | 877 | ..Rotary dynamoelectric type: (Class 310/40+) |
| 853 | .Oscillator: (Class 331) | 878 | ...With cooling: (Class 310/52+) |
| 854 | ..With solid-state active element: (Class 331/107S) | 879 | .Magnet or electromagnet: (Class 335/216) |
| 855 | .Amplifier: (Class 330) | 880 | .Inductor: (Class 336/DIG 1) |
| 856 | .Electrical transmission or interconnection system: (Class 307) | 881 | .Resistance device responsive to magnetic field: (Class 338/32S) |
| 857 | ..Nonlinear solid-state device system or circuit: (Class 307/200+) | 882 | .Circuit maker or breaker: (Class 200) |
| 858 | ...Digital logic: (Class 307/476) | 883 | .Housing and mounting assembly with plural diverse electrical components: (Class 361/331+) |
| 859 |Function of AND, OR, NAND, NOR or NOT: (Class 307/462) | 884 | .Conductor: (Class 174) |
| 860 | ...Gating (i.e., switching) circuit: (Class 307/245) | 885 | ..Cooling, or feeding, circulating, or distributing fluid; in superconductive apparatus: (Class 174/15CA) |

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| 886 | ...Cable: (Class 174/15S) | 922 | ..Making Josephson junction device |
| 887 | ..Conductor structure: (Class 174/126S and 128S) | 923 | ..Making device having semiconductive component (e.g., integrated circuit, etc.) |
| 888 | .Refrigeration: (Class 62) | 924 | ..Making superconductive magnet or coil |
| 889 | ..Utilizing rare earth material | 925 | ..Making superconductive joint |
| 890 | ..Heat pipe device | 926 | ..Mechanically joining superconductive members |
| 891 | ..Magnetic or electrical effect cooling | 927 | ..Metallurgically bonding superconductive members |
| 892 | ..Magnetic device cooling | 928 | ..Metal deforming |
| 893 | ...Spectrometer | 929 | ...By extruding |
| 894 | ..Cyclic cryogenic system (e.g., Sterling, Gifford-McMahon, etc.) | 930 | ...By drawing |
| 895 | ...With regenerative heat exchanger | 931 | .Classifying, separating, and assorting solids using magnetism: (Class 209) |
| 896 | ..Special refrigerant compound | 932 | ..Separating diverse particulates |
| 897 | ..Cryogenic media transfer | 933 | ...In liquid slurry |
| 898 | ..Cryogenic envelope | | |
| 899 | ..Method of cooling | | |
| 900 | ..Heat exchange: (Class 165) | | |
| 901 | ..Heat pipe | | |
| 902 | ..Railway (e.g., rapid transit, etc.): (Class 104) | | |
| 903 | ..Suspension (e.g., magnetic, electrodynamic, etc.) | | |
| 904 | ...Guidance means (i.e., in addition to the track) | | |
| 905 | ...Motor structure | | |
| 906 | ...Switching device (i.e., electrical not railway stock diverting) | | |
| 907 | ...Support structure | | |
| 908 | ..Method of operation | | |
| 909 | .Power plant: (Class 60) | | |
| 910 | .Pump: (Class 417) | | |
| 911 | .Fluid reaction surface (i.e., impeller): (Class 416) | | |
| 912 | .Metal founding: (Class 164) | | |
| 913 | ..Casting process | | |
| 914 | ...Using magnetic or electric field | | |
| 915 | ...Making composite product | | |
| 916 | ...Continuous casting | | |
| 917 | .Mechanically manufacturing superconductor: (Classes 29, 72, and 228) | | |
| 918 | ..With metallurgical heat treating | | |
| 919 | ...Reactive formation of superconducting intermetallic compound | | |
| 920 | ...Utilizing diffusion barrier | | |
| 921 | ...Metal working prior to treating | | |

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