

## ESI 材料科学学科研究前沿排名 TOP20 (2018-3)

| 序号 | 研究前沿                                                                                                                                                                                                                                                   | 论文数 | 被引频次          | 篇均被引频次 | 平均年    |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------|--------|--------|
| 1  | MONOLAYER TRANSITION METAL<br>DICHALCOGENIDES;MONOLAYER TRANSITION METAL<br>DICHALCOGENIDE SEMICONDUCTOR;MONOLAYER<br>MOS2;MONOLAYER WSE2;MONOLAYER MOLYBDENUM<br>DISULPHIDE                                                                           | 42  | <b>12,760</b> | 303.81 | 2014   |
| 2  | NONAQUEOUS LI-O-2 BATTERIES;RECHARGEABLE LI-O-2<br>BATTERIES;CYCLING LI-O-2 BATTERIES;AQUEOUS LI-O-2<br>BATTERIES;LI-O-2 BATTERIES BASED                                                                                                               | 45  | <b>10,370</b> | 230.44 | 2013.4 |
| 3  | DIELECTRIC GRADIENT METASURFACE OPTICAL<br>ELEMENTS;ULTRA-THIN PLASMONIC OPTICAL VORTEX<br>PLATE BASED;PLASMONIC GRADIENT<br>METASURFACES;DIELECTRIC METASURFACES;HUYGENS<br>METASURFACES BASED                                                        | 44  | <b>10,046</b> | 228.32 | 2013.6 |
| 4  | STABLE THREE-DIMENSIONAL TOPOLOGICAL DIRAC<br>SEMIMETAL CD3AS2;THREE-DIMENSIONAL TOPOLOGICAL<br>DIRAC SEMIMETAL PHASE;TOPOLOGICAL WEYL SEMIMETAL<br>CANDIDATE NBP;TOPOLOGICAL WEYL SEMIMETAL<br>STATE;THREE-DIMENSIONAL TOPOLOGICAL DIRAC<br>SEMIMETAL | 38  | <b>9,937</b>  | 261.5  | 2014.7 |

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| 5  | FEW-LAYER BLACK PHOSPHORUS FIELD-EFFECT TRANSISTORS;FEW-LAYER BLACK PHOSPHORUS;BLACK PHOSPHORUS FIELD-EFFECT TRANSISTORS;BLACK PHOSPHORUS PHOTODETECTOR;ULTRATHIN BLACK PHOSPHORUS                                                               | 13  | <b>8,597</b> | 661.31 | 2014   |
| 6  | REALIZING MAJORANA FERMIONS;MAJORANA FERMIONS;SELF-SUSTAINED TOPOLOGICAL MAJORANA PHASE;MAJORANA NANOWIRE;MAJORANA QUANTUM WIRES                                                                                                                 | 25  | <b>8,541</b> | 341.64 | 2012.9 |
| 7  | SILICENE FIELD-EFFECT TRANSISTORS OPERATING;CORRUGATED SILICENE PHASES;FERROMAGNETIC SILICENE JUNCTIONS;BUCKLED SILICENE FORMATION;SILICENE LAYERS                                                                                               | 24  | <b>7,829</b> | 326.21 | 2012.7 |
| 8  | GRAPHENE OXIDE MODIFIED POLYAMIDE THIN FILM COMPOSITE MEMBRANES;FREESTANDING ULTRATHIN REDUCED GRAPHENE OXIDE MEMBRANES;GRAPHENE OXIDE MEMBRANES BASED;NANOSTRAND-CHANNELLED GRAPHENE OXIDE MEMBRANES;MOLECULAR-SIEVING GRAPHENE OXIDE MEMBRANES | 46  | <b>7,259</b> | 157.8  | 2014.3 |

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| 9  | SODIUM-ION ENERGY STORAGE BATTERIES;ROOM-TEMPERATURE STATIONARY SODIUM-ION BATTERIES;RECHARGEABLE SODIUM-ION BATTERIES;SODIUM-ION BATTERIES;SODIUM ION BATTERIES                                                                                                 | 8   | <b>7,171</b> | 896.38 | 2013   |
| 10 | HIGHLY EFFICIENT ORGANIC DYE-SENSITIZED SOLAR CELLS;HIGH-CONVERSION-EFFICIENCY ORGANIC DYE-SENSITIZED SOLAR CELLS;HIGHLY EFFICIENT DYE-SENSITIZED SOLAR CELLS;HIGH-EFFICIENCY CO(II/III)-BASED DYE-SENSITIZED SOLAR CELLS;STABLE DYE-SENSITIZED SOLAR CELLS      | 24  | <b>7,053</b> | 293.88 | 2013.8 |
| 11 | EFFICIENT BLUE ORGANIC LIGHT-EMITTING DIODES EMPLOYING THERMALLY;DELAYED FLUORESCENT ORGANIC LIGHT-EMITTING DIODES;FULL-COLOR DELAYED FLUORESCENCE MATERIALS BASED;HIGHLY EFFICIENT ORGANIC LIGHT-EMITTING DIODES;HIGHLY EFFICIENT ORGANIC LIGHT EMITTING DIODES | 39  | <b>6,868</b> | 176.1  | 2014.4 |
| 12 | EFFICIENT 3D HYDROGEN EVOLUTION CATHODE;EFFICIENT HYDROGEN EVOLUTION CATHODE;COST-EFFECTIVE 3D HYDROGEN EVOLUTION CATHODE;HYDROGEN EVOLUTION REACTION;CARBIDE CATALYZE HYDROGEN EVOLUTION                                                                        | 23  | <b>6,828</b> | 296.87 | 2013.6 |

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| 13 | OXYGEN REDUCTION REACTION ACTIVITY;OXYGEN REDUCTION REACTION;ELECTROCHEMICAL OXYGEN REDUCTION ACTIVITY;OXYGEN REDUCTION REACTIONS;ELECTROCATALYTIC OXYGEN REDUCTION                                                                       | 17  | <b>6,581</b> | 387.12 | 2012.3 |
| 14 | TWO-DIMENSIONAL LAYERED TRANSITION METAL DICHALCOGENIDE NANOSHEETS;TWO-DIMENSIONAL TRANSITION METAL DICHALCOGENIDES;CHEMISTRY;ELECTRONICS;OPTOELECTRONICS                                                                                 | 2   | <b>6,557</b> | 3278.5 | 2012.5 |
| 15 | ROBUST SILICON NANOPARTICLE-BASED LITHIUM ION BATTERY ANODES;DOUBLE-WALLED SILICON NANOTUBE BATTERY ANODES;HIGH-PERFORMANCE LITHIUM BATTERY ANODES;CRYSTALLINE SILICON NANOPARTICLE LITHIATION;LARGE-VOLUME-CHANGE LITHIUM BATTERY ANODES | 19  | <b>6,502</b> | 342.21 | 2012.6 |
| 16 | EFFICIENT SOLAR WATER SPLITTING;HIGHLY EFFICIENT WATER SPLITTING;COPPER(I) OXIDE WATER SPLITTING PHOTOCATHODES;EFFICIENT BIVO4 THIN FILM PHOTOANODES MODIFIED;EFFICIENT WATER OXIDATION                                                   | 31  | <b>6,068</b> | 195.74 | 2013.5 |

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| 17 | CHEMICALLY EXFOLIATED METALLIC MOS2 NANOSHEETS;DEFECT-RICH MOS2 ULTRATHIN NANOSHEETS;OXYGEN-INCORPORATED MOS2 ULTRATHIN NANOSHEETS;CONDUCTING MOS2 NANOSHEETS;HYDROGEN EVOLUTION CATALYSIS                                                                              | 8   | <b>5,783</b> | 722.88 | 2012.9 |
| 18 | HIGH EFFICIENCY ELECTRODEPOSITED CU2ZNSNS4 SOLAR CELL;CU2ZNSNSE4 THIN FILM SOLAR CELLS;ELECTRODEPOSITED CU2ZNSNSE4 THIN FILM SOLAR CELL;SE)(4) THIN-FILM SOLAR CELLS;CU2ZNSNS4 SOLAR CELLS                                                                              | 23  | <b>5,579</b> | 242.57 | 2013   |
| 19 | POROUS TWO-DIMENSIONAL TRANSITION METAL CARBIDE (MXENE) FLAKES;TRANSPARENT CONDUCTIVE TWO-DIMENSIONAL TITANIUM CARBIDE EPITAXIAL THIN FILMS;TWO-DIMENSIONAL TRANSITION METAL CARBIDES;CONDUCTIVE TWO-DIMENSIONAL TITANIUM CARBIDE CLAY;TWO-DIMENSIONAL TITANIUM CARBIDE | 31  | <b>5,479</b> | 176.74 | 2014.4 |
| 20 | 3D POROUS CRYSTALLINE POLYIMIDE COVALENT ORGANIC FRAMEWORKS;CRYSTALLINE 2D COVALENT ORGANIC FRAMEWORKS;HOMOCHIRAL 2D POROUS COVALENT ORGANIC FRAMEWORKS;LARGE-PORE CRYSTALLINE POLYIMIDE COVALENT ORGANIC FRAMEWORKS;HIGHLY CRYSTALLINE COVALENT ORGANIC FRAMEWORKS     | 45  | <b>5,456</b> | 121.24 | 2014.8 |