数学が拓いた化学と物理の新しい狭間:トポロジカル物質材料科学

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A Niche between Chemistry and Physics Opened by Mathematics: Topological Materials Science (*Laboratory for Materials and Structures, Tokyo Institute of Technology*)
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Topological materials science is a new science and technology of this century, born across chemistry and physics by applying the mathematical concept of topology (soft geometry) to electronic states. The progress of the field, from insulators to semimetals to superconductors, will be reviewed along with our contributions[1-12]. Then, the great potential and future prospects of topological quantum materials and properties will be discussed from the perspective of "trans-dimensional chemistry".
Keywords : Topological Materials Science; Topological Insulator; Topological Semimetal; Topological Superconductor

トポロジカル物質材料科学は、やわらかい幾何学という数学の概念を電子状態に適用することで化学と物理にまたがって生まれた、今世紀の新しい学問・科学技術である。絶縁体から始まり、半金属、そして超伝導体へとすそ野を拡げてきた分野の進展を講演者の研究を交えながら紹介する[1-12]。そして、トポロジカル量子物質・物性がもつ大きな可能性について、超次元化学の観点も鑑みながら話題提供し、今後の展望を議論する。

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