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Borophene

Higher Education Press
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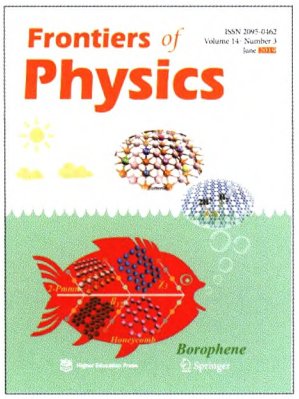

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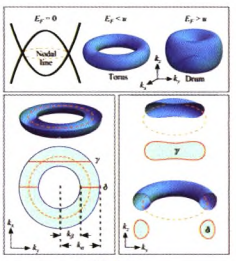

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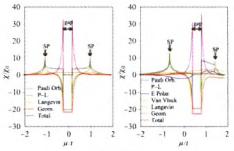
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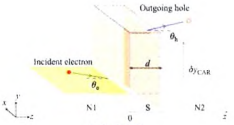

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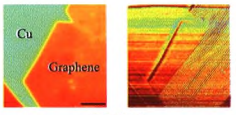

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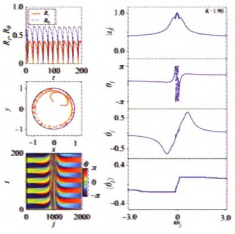
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Cover
Borophene, the lightest two-dimensional material, shows highly anisotropic atomic structures, electronic properties, thermal conductivity, optical, and surface ion transport properties. Both the free-standing and metal substrate supported borophenes have high structural diversity. Furthermore, the distinction between borophene crystal and boron vacancy defect is blurry, due to the ultralow boron vacancy defect formation energy. This phenomenon is completely different from other two-dimensional materials. Due to the small atomic mass of boron, borophene has very high Li/Na/K/Mg/Ca/Al storage capacity as the anode materials for alkali metal ion batteries. Ultra-fast ion migration is observed on the 2-*Pmmn* phase of borophene due to the unique corrugated structure. Borophene shows vast application prospect in alkali metal ion batteries, Li-S batteries, hydrogen storage, and catalytic reaction. For more details, please refer to the article "Review of borophene and its potential applications" by Zhi-Qiang Wang, et al., *Front. Phys.* 14(3), 33403. [Photo credits: Zhi-Qiang Wang]

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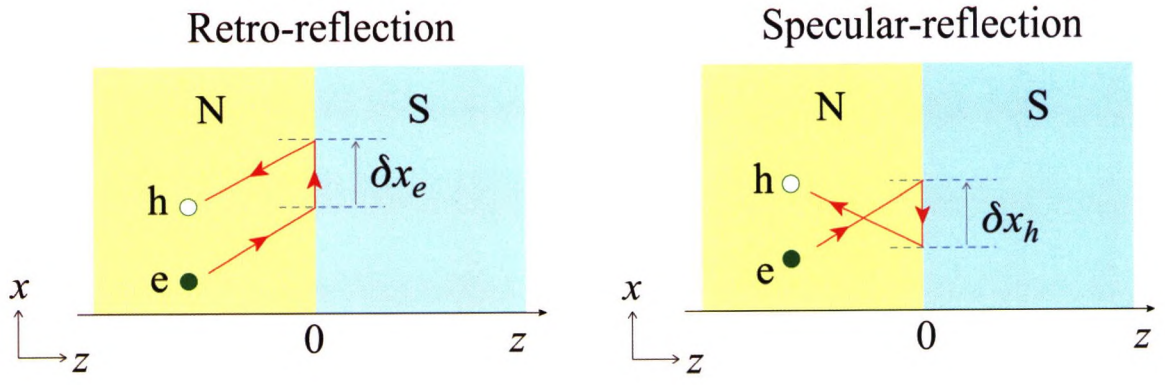

Schematic figures for the shifts in the two types of Andreev reflection in the graphene/superconductor model. See: Zhi-Ming Yu, Ying Liu, and Shengyuan A. Yang, Anomalous spatial shifts in interface electronic scattering, *Front. Phys.* 14(3), 33402 (2019).

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