

## **Bulk-boundary correspondence of topologically trivial insulators**

*Thursday, 2 September 2021 14:00 (1 hour)*

Topological insulators are materials in which the bulk part is insulating but the surface is metallic because of protected gapless states on the surface. The correspondence between the bulk topology and the gapless surface states is called the bulk-boundary correspondence. Recently, higher-order topological insulators with gapless states localized at hinges and corners of a crystal, rather than at surfaces, have been actively studied.

On the other hand, it has been found that even topologically trivial insulators may also exhibit a kind of bulk-boundary correspondence. These materials are characterized by electric multipole moments in the bulk and feature fractionally quantized electric charges at hinges and corners of a crystal. In this talk, I will review these recent developments and show that, in fact, a crystal of sodium chloride (NaCl) is the simplest example of octupole insulators which have  $1/8$  of the elementary charge  $e$  at corners.

Ref: HW and Hoi Chun Po, arXiv:2009.04845

**Presenter:** WATANABE, Haruki (The University of Tokyo)