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Satoshi Tanda* (tanda@eng.hokudai.ac.jp), Sapporo, Hokkaido 060-8628, Japan. *Topological crystals as a new paradigm.*

We report the discovery of Mobius, Ring, Figure-8, Hopf-link Crystals in NbSe₃, conventionally grown as ribbons and whiskers. We also reveal their formation mechanisms of which two crucial components are the spherical selenium (Se) droplet, which a NbSe₃ fiber wraps around due to surface tension, and the monoclinic (P2(1)/m) crystal symmetry inherent in NbSe₃, which induces a twist in the strip when bent. Our crystals provide a non-trivial topological world governed by a non-trivial real-space topology. We classified these topological crystals as an intermediary between condensed matter physics and mathematics.

References

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