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- *Universal probes of two-dimensional topological insulators: Dislocation and π -flux*, Vladimir Juričić, Andrej Mesaros, Robert-Jan Slager and Jan Zaanen, Phys. Rev. Lett. **108**, 106403 (2012). [Chapter 3]
- *Zero-energy states bound to a magnetic π -flux vortex in a two-dimensional topological insulator*, Andrej Mesaros, Robert-Jan Slager, Jan Zaanen and Vladimir Juričić, Nucl. Phys. B **867**, 977 (2012). [Chapter 3]
- *The space group classification of topological band insulators*, Robert-Jan Slager, Andrej Mesaros, Vladimir Juričić and Jan Zaanen, Nat. Phys. **9**, 98 (2013). [Chapter 4, Science editors' choice]
- *Interplay between electronic topology and crystal symmetry: Dislocation-line modes in topological band insulators*, Robert-Jan Slager, Andrej Mesaros, Vladimir Juričić and Jan Zaanen, Phys. Rev. B **90**, 241403 (R) (2014). [Chapter 5]
- *Classification of nematic order in 2+1D: Dislocation Melting and $O(2)/Z_n$ lattice gauge theory*, Ke Liu, Jaakko Nissinen, Zohar Nussinov, Robert-Jan Slager, Kai Wu and Jan Zaanen, Phys. Rev. B **91**, 075103 (2015).
- *Impurity bound states and Green's functions zeroes as local signatures of topology*, Robert-Jan Slager, Louk Rademaker, Jan Zaanen and Leon Balents, Phys. Rev. B **92**, 085126 (2015). [Chapter 4]
- *Isospinless graphene on grain boundaries in topological band insulators*, Robert-Jan Slager, Vladimir Juričić, Ville Lahtinen and Jan Zaanen, *rejected in refereeing stage Science, submitted to Nature Physics*. [Chapter 6]

In preparation:

- *Chiral liquid crystals: the vestigial order of O and T matter*, Ke Liu, Jaakko Nissinen, Robert-Jan Slager and Jan Zaanen.
- *Lattice gauge theoretical description of nematic ordering*, Ke Liu, Jaakko Nissinen, Zohar Nussinov, Robert-Jan Slager, Kai Wu and Jan Zaanen.