

Special Issue on **Disorder, PT-Symmetry, and Flat Bands**

CALL FOR PAPERS

The phenomenon of Anderson localization in disordered systems constitutes one of the staples of modern condensed-matter physics. Proposed originally for electrons and one-particle excitations in solids, it was soon extended to many other fields such as Bose–Einstein condensates, optics, microwaves, and acoustics. It still continues to surprise us even now, more than 50 years since its discovery. On the other hand, more recent concepts like Parity-Time- (PT-) symmetry and Flat Bands have called for increased attention nowadays. In PT-symmetry one is concerned with the spectra of systems that are best described by non-Hermitian Hamiltonians, as in new families of artificial materials that rely on balanced gain and loss terms, achieving in this way new characteristics and functionalities. Also, in optics, some intriguing behaviors can be observed including power oscillations, absorption-enhanced transmission, and unidirectional optical valves. Another concept that has claimed considerable attention recently is that of Hermitian systems that exhibit flat bands. They include optical and photonic lattices, graphene, superconductors, fractional quantum Hall systems, and exciton-polariton condensates. The presence of a flat band in the spectrum of a Hermitian lattice implies the existence of a set of entirely degenerate states whose superposition displays no dynamical evolution. This allows the formation of compacton-like structures that are completely localized in space. Such states have been recently observed experimentally. It is, thus, only natural to expect that the interplay of these new concepts with disorder, due to inevitable fabrication defects, will stimulate the curiosity of researchers and will provide new exciting research avenues.

The objective of this special issue is to highlight the most recent, state-of-the-art research efforts on any of these topics. In particular, we welcome theoretical and experimental papers dealing with these themes, as well as especially with the interplay among them. We also welcome review articles on these topics that describe their current state of the art.

Potential topics include but are not limited to the following:

- ▶ Anderson localization, correlated disorder, and dynamic disorder
- ▶ PT-symmetry and applications to integrated optics, metamaterials, and plasmonics
- ▶ Flat bands with disorder and/or nonlinearity, photonic lattices, and condensates

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/acmp/dpsfb/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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