A Special Session on *Singularities and Physics* was organized for the AMS Sectional Meeting held in Knoxville, TN on March 21–23, 2014. The session focused on the theory of singularities and its interactions with different branches of theoretical physics: singularities of elliptic fibrations in string theory, renormalization issues in quantum field theory, Landau-Ginzburg models, wall-crossing phenomena, and other recent points of contact. The aim was to bring together the mathematics and physics communities, to foster further interactions. The speakers and talks at the session were as follows:

- *Lara Anderson:* Geometric Constraints in Heterotic/F-theory.
- *Jacob Bourjaily:* Scattering Amplitudes and the Positive Grassmannian
- *Mirjam Cvetic:* Elliptic fibrations with higher rank Mordell-Weil Group: F-theory compactifications with higher rank Abelian Gauge Symmetry
- *Clay Cordova:* Deformations of superconformal field theories
- *Antonella Grassi:* Deformations and Resolutions.
- *Ralph Kaufmann:* Singularities, swallowtails and topological properties in families of Hamiltonians.
- *Anatoly Libgober:* Calabi-Yau threefolds from plane singular curves.
- *Matilde Marcolli:* Rota-Baxter algebras of singular hypersurfaces and applications to quantum field theory.
- *Laurentiu Maxim:* Intersection spaces, perverse sheaves and type IIB string theory.
- *Dave Morrison:* Canonical singularities and superconformal field theories
- *Richard Rimanyi:* R-matrices acting on the cohomology of flag varieties
- *Washington Taylor:* Classifying and enumerating elliptically fibered Calabi-Yau threefolds and associated singularities.

This volume collects articles written by some of the speakers on the occasion of this meeting, expanding on the content of their talks or reporting on research originated in discussions begun at the conference. We offer the contributors to this volume and the other participants our heartfelt thanks for their work and for the relaxed yet stimulating atmosphere permeating the special session.

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