Information on the keynote at GMP-X 2026

Konrad Polthier , **FU Berlin, Germany**

Title: Vibrations of Geometric Shape

Short biography

Konrad Polthier is full professor of mathematics at Freie Universität Berlin since 2005. He received his PhD from University of Bonn in 1994, and headed research groups a Technische Universität Berlin and Zuse Institute Berlin.

His research focuses on discrete differential geometry, applied geometry, geometry processing and mathematical visualization. Results from him have been applied in industry such as computer graphics, computer aided design and architecture.

Dr. Polthier has written and co-edited books on mathematical visualization and co-produced mathematical video films. His video MESH – A Journey Through Discrete Geometry (www.mesh-film.de) , joint with Beau Janzen, has received several international awards.

Polthier has served as conference chair on international conferences including the International Geometry Summit, SGP and SIAM Geometric Design.

He serves as co-editor in chief of Computer Aided Geometric Design and he supports mathematical outreach as chair of the Berlin Mathematical Society.

Abstract: Vibrations of musical strings are well understood by Fourier analysis while the vibrations of geometric shapes exhibit surprising properties triggered by careful choices of differential geometric energies. We will review solved problems and introduce novel approaches with applications in biology, computer graphics and crystallography, and in topology.