Invited Lecturers

Mat Langford will present a mini-course on Ricci flow. Mat Langford obtained his PhD from the Australian National University in 2014. He was a Humboldt fellow and the last three years held an ARC-funded DECRA fellowship. Currently, he is an MSI fellow at Australian National University. He is interested in curvature-driven parabolic equations, including Ricci flow and mean curvature flow. He has done extensive work in fully non-linear flows of surfaces and hypersurfaces by functions of the principal curvatures [2, 3, 4, 5, 6, 16]. Notably, together with Theodora Bourni, Giuseppe Tinaglia and Stephen Lynch, he has established new properties and classification results for ancient solutions [7, 8, 9, 10, 11, 12, 13]. And he is a co-author of the book "Extrinsic geometric flows" [1], one of the most complete and comprehensive manuscripts on the subject.

Mariel Sáez-Trumper will present a mini course on mean curvature flow. Mariel received her PhD from Stanford University in 2005 and is currently an Associate Professor of Mathematics at the Pontificia Universidad Católica de Chile in Santiago, where she has also served as department head. Her diverse research interests span the fields of geometric analysis, geometric measure theory and PDE; in particular, she has studied the flow of networks by curve shortening [18, 21, 22, 28] and the mean curvature flow [20]. Notably, in joint work with Oliver Schnürer, she discovered a new concept of weak solution for the mean curvature flow [20] and in a very recent work, joint with Panagiota Daskalopoulos proved uniqueness of graphical mean curvature flow [14].

Julian Scheuer will present a mini course on applications of geometric flows to general relativity. Julian received his PhD from the University of Heidelberg in 2013 and is now a Professor for Geometric Analysis at the Goethe-Universität Frankfurt. His research interests are in the theory and applications of geometric evolution equations. He is in particular excited about questions arising from convex geometry, such as generalized isoperimetric type inequalities and also about questions arising from general relativity, such as Penrose-type inequalities. He has extensively studied inverse curvature flows, such as inverse mean curvature flow, in various ambient spaces [15, 17, 23, 24, 25, 26]. Notably, in joint work with Chao Xia and Guofang Wang, he has proved certain Alexandrov-Fenchel inequalities for convex hypersurfaces with free boundary in a ball [27]. And recently, together with Henri Roesch, defined a mean curvature flow of spacelike surfaces within null hypersurfaces of 4-dimensional spacetimes as the projection of a codimension-two mean curvature flow to the null hypersurface [19].

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