Interplay between the Loewner and Dirichlet energies: Conformal welding and Flow-lines

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The Loewner energy defined for Jordan curves is the action functional of SLE (and also its large deviation rate function when the parameter goes to 0). It was shown in a previous work that a Jordan curve has finite energy if and only if it is a Weil-Petersson quasicircle.In this talk we present identities that relate the Loewner energy to the Dirichlet energy of ambient fields. They are deterministic analogs of both the welding and flow-line couplings of SLEs with the Gaussian free field on the level of action functionals. We deduce also an identity on complex valued fields that combines both welding and flow-line identities. We apply these results to show that the operation of arclength isometric welding of two finite energy domains is sub-additive in the energy and that the energy of equipotentials in a simply connected domain is monotone.

Tuesday, June 11, 2019 05:30pm - 06:30pm

Big Seminar room Ground floor / Office Bldg West (I21.EG.101)

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