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Talk: Orthogonal ring patterns and discrete surfaces

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We introduce orthogonal ring patterns consisting of pairs of concentric circles. They generalize orthogonal circle patterns which can be treated as conformal limit. It is shown that orthogonal ring patterns in euclidean and hyperbolic planes and in a sphere are governed by integrable equations, in particular by the discrete master equation Q4. We deliver variational principles which are used to prove existence and uniqueness results, and also to compute ring patterns with classical boundary conditions. The later are used to generate discrete cmc surfaces. Relation to minimal surfaces in S^3 and AdS^3 is discussed. Numerous virtual and printed models as well as animation movies will be demonstrated.

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