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**Daina Taimina\*** ([daina.taimina@cornell.edu](mailto:daina.taimina@cornell.edu)), Department of Mathematics, Malott Hall, Cornell University, Ithaca, NY 14853-4201. *Exploring two-dimensional manifolds with crochet hook.*

Crocheted models of the hyperbolic plane are very inviting to play with. There are many different ways to fold symmetric hyperbolic planes. Starting from the same basic plane, there are unlimited possibilities to create different fiber sculptures. Do these different shapes have anything to do with mathematics or are they just purely aesthetic forms? All those surfaces are geometric 2-manifolds. Each of them is covered by the hyperbolic plane and so each is locally isometric to the hyperbolic plane (and to each other). However, among these geometric 2-manifolds, only the hyperbolic plane is simply connected—all the other hyperbolic surfaces have holes or circles that cannot be shrunk on the surface. In the first /Fiber Arts in Mathematics and Mathematics Education/ session I showed crocheted hyperbolic octagon that forms a two-manifold. In this talk I will show how to make two-manifolds from crocheted hyperbolic rectangular hexagons and ideal triangles. (Received September 13, 2008)