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Denis Auroux* (auroux@math.mit.edu), MIT Department of Mathematics, 77 Massachusetts Avenue, Cambridge, MA 02139. *Broken Lefschetz fibrations on smooth 4-manifolds*. Preliminary report.

A broken fibration is a map from a smooth 4-manifold to S^2 with two types of singularities: isolated Lefschetz-type singularities (complex Morse singularity), and indefinite fold singularities along circles. These structures provide an interesting way to think about closed oriented smooth 4-manifolds. This talk will survey some recent progress on broken fibrations, including work in progress of my student Yankı Lekili. I hope to discuss: existence results and constructions; "wrinkled" fibrations and moves on them; the "Lagrangian matching invariants" defined by Perutz and their conjectured relations to 3- and 4-manifold invariants. (Received August 01, 2008)