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**Mark G Walsh\*** ([walsmark@math.oregonstate.edu](mailto:walsmark@math.oregonstate.edu)). *Understanding the space of positive scalar curvature metrics.*

A great deal is known about the problem of whether or not a smooth manifold admits a metric of positive scalar curvature (psc-metric). Far less is known about the topology of the space  $R^+(M)$  of psc-metrics on a given smooth manifold  $M$  (or the corresponding moduli spaces). In this talk, I will briefly discuss the status of this problem before describing some new techniques for constructing interesting families of psc-metrics. One application of these techniques (joint work with Botvinnik, Hanke and Schick) is to show that certain moduli spaces of psc-metrics have non-trivial higher homotopy groups. (Received February 14, 2011)