David E. Blair* (`blair@math.msu.edu`). *Conformally Flat Contact Metric Manifolds.*

We will begin with a review of the basic ideas of contact manifolds and associated metrics. Our first topic will then be to discuss the question of constant curvature for contact metric manifolds, a question which has a very short answer. The main topic of the lecture is whether or not there exist conformally flat, contact metric manifolds which are not of constant curvature. In dimensions ≥ 5 this is open, but in dimension 3, these exist. We will also relate the 3-dimensional examples constructed to a problem in astrophysics. We will close by briefly discussing a possible approach in the compact case in general dimension. (Received January 29, 2014)