

*Yamabe Symposium talk:*  
Ricci flow in high dimensions

Burkhard Wilking, University of Münster

5:00–6:00 PM, Friday, September 26

*Abstract:* In this talk we analyze Riemannian manifolds  $(M, g)$  satisfying

$$\text{scal} > (2n(n-2))^{1/2} \|R_W\|$$

where  $\|R_W\|$  is the norm of the Weyl curvature. We show that in even dimensions  $n > 12$  the number  $(2n(n-2))$  is the only constant such that this condition is invariant under the Ricci flow. The constant is chosen such that equality holds for the product of two half-dimensional spheres  $S^{n/2} \times S^{n/2}$ . The condition behaves very naturally under conformal deformations which in turn allows to prove that the class of manifolds admitting metrics as above is invariant under surgery with codimension  $> n/2 + 1$ .

Finally we speculate why the Ricci flow should develop singularities which are dual to the above surgery procedure.