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Christine M Guenther* (guenther@pacificu.edu), Department of Mathematics & Computer Science, Pacific University, 2043 College Way, Forest Grove, OR 97116. *Updates on the second order renormalization group flow*. Preliminary report.

The second order renormalization group flow $\frac{\partial}{\partial t}g = -2Rc - \frac{\alpha}{2}Rm^2$ arises in quantum field theory, and can be considered as a natural nonlinear perturbation of the Ricci flow (here $\alpha > 0$ is a parameter and $Rm_{ij}^2 := R_{ilm}R_j^{ilm}$). In this talk we highlight recent results, including further work on three-dimensional locally homogeneous spaces. (Received September 12, 2014)