1147-35-490 **Gieri Simonett*** (gieri.simonett@vanderbilt.edu), **Jan Pruess** and **Mathias Wilke**.

Critical spaces and maximal regularity for parabolic evolution equations.

I will introduce critical spaces for parabolic evolution equations with the help of time-weighted function spaces in the context of L_p-maximal regularity. It is shown that the critical spaces defined by means of a critical weight are scaling invariant in case the underlying equation has a scaling. Moreover, it is shown that solutions with initial values in critical spaces immediately regularize, and conditions for global existence are given. Several examples are considered, such as the Navier-Stokes equations and the chemotaxis Navier-Stokes equations on bounded domains. (Received January 24, 2019)