



## Karlstad Applied Analysis Seminar (2020)

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### **Stochastic homogenization of multicontinuum heterogeneous flows**

#### **Abstract**

We consider a multicontinuum model in porous media applications, which is described as a system of coupled flow equations. The coupling between different continua depends on many factors and its modeling is important for porous media applications. The coefficients depend on particle deposition that is described in term of a stochastic process solution of an SDE. The stochastic process is considered to be faster than the flow motion and we introduce time-space scales to model the problem. Our goal is to pass to the limit in time and space and to find an associated averaged system. This is an averaging-homogenization problem, where the averages are computed in terms of the invariant measure associated to the fast motion and the spatial variable. We use the techniques developed in our previous paper "Stochastic homogenization for a diffusion-reaction model", to model the interactions between the continua and derive the averaged model problem that can be used in many applications.