A support theorem in Hölder norm for a stochastic wave equation

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We consider a non-linear stochastic wave equation

$$\left(\frac{\partial^2}{\partial t^2} - \Delta\right) u(t,x) = \sigma\big(u(t,x)\big)\dot{M}(t,x) + b\big(u(t,x)\big), \ (t,x) \in]0,T] \times \mathbb{R}^3,$$

$$u(0,x) = u_0(x), \quad \frac{\partial}{\partial t}u(0,x) = v_0(x),$$

driven by a Gaussian noise M, white in time and with a spatial stationary covariance. Under suitable conditions, it is known that the sample paths of the random field solution are Hölder continuous, jointly in time and in space (see Dalang and Sanz-Solé (2009). In this talk, we will establish a characterization of the topological support of the law of the solution to this equation in Hölder norm. This follows from an approximation theorem, in the convergence of probability, for a sequence of evolution equations driven by a family of regularizations of the driving noise.