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Dimitrios Ntalampekos* (dimitrisnt@math.ucla.edu), UCLA Mathematics Department, Los Angeles, CA 90095-1555. *(Non)-Removability of the Sierpiński Gasket.*

Removability of sets for quasiconformal maps and Sobolev functions has applications in Complex Dynamics, in Conformal Welding, and in other problems that require “gluing” of functions to obtain a new function of the same class. We, therefore, seek geometric conditions on sets which guarantee their removability. In this talk, I will discuss some very recent results on the (non)-removability of the Sierpiński gasket.

A first result is that the Sierpiński gasket is removable for continuous functions of the class $W^{1,p}$ for $p > 2$. The method used applies to more general fractals that resemble the Sierpiński gasket, such as Apollonian gaskets and generalized Sierpiński gasket Julia sets.

Then, I will sketch a proof that the Sierpiński gasket is non-removable for quasiconformal maps and thus for $W^{1,p}$ functions, for $1 \leq p \leq 2$. The argument involves the construction of a non-Euclidean sphere, and then the use of the Bonk-Kleiner theorem to embed it quasisymmetrically to the plane. (Received January 20, 2018)