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2015 Ulam Colloquium

Recent Progress on the De Giorgi Conjecture

Department of Mathematics
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Abstract: In 1978 De Giorgi conjectured that all bounded solutions of $\Delta u + u - u^3 = 0$ in $\mathbb{R}^n$ with $n \leq 8$ can only have hyperplane type level sets if they are monotone in one direction. The De Giorgi Conjecture has been a major focus of research in the area of semilinear elliptic partial differential equations. Many people have contributed to the progress of this conjecture. In 2003 Ovidiu Savin proved this is true with an additional assumption. In 2008, Manuel del Pino, Mike Kowalczyk and Juncheng Wei constructed counter example for $n \geq 9$. Juncheng Wei gave an invited lecture on "Geometric approaches to semilinear elliptic equations" at the International Congress of Mathematics held in Korea in 2014. He held the Wei Lun Professorship of Mathematics at the Chinese University of Hong Kong before moving to British Columbia in 2012.

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Friday, March 20, 4:05-4:55 pm in LIT 121

Refreshments at 3:30 in LIT 339

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