



THE UNIVERSITY  
of NORTH CAROLINA  
at CHAPEL HILL

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**M. E. Taylor Analysis and PDE Seminar**

Wednesday, April 3<sup>rd</sup>  
3:30 - 4:30 p.m.  
Phillips Hall 385

**On the Donaldson-Scaduto conjecture**

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**Abstract.** Donaldson proposed a new method to study manifolds with special holonomy groups, particularly Calabi-Yau 3-folds and G2-manifolds, utilizing a Lefschetz fibration. Motivated by collapsing G2-manifolds with K3 fibrations in the adiabatic setting, Donaldson and Scaduto formulated a structural conjecture about special Lagrangians in Calabi-Yau 3-folds with K3 fibrations. After a brief introduction to the subject, we discuss the significance of this conjecture in the study of Calabi-Yau 3-folds and G2-manifolds. Finally, we present a proof of the local version of the Donaldson-Scaduto conjecture. If time permits, I will also mention the first steps towards proving the global version of the conjecture. This is based on a joint work with Yang Li.