



# Library Indian Institute of Science Education and Research Mohali



**DSpace@IISERMohali (/jspui/)**

**/ Thesis & Dissertation (/jspui/handle/123456789/1)**

**/ Master of Science (/jspui/handle/123456789/2)**

**/ MS-13 (/jspui/handle/123456789/914)**

Please use this identifier to cite or link to this item: <http://hdl.handle.net/123456789/1045>

**Title:** Probing ultrafast solvation dynamics using pump- probe spectroscopy and fluorescence-detected pump-probe spectroscopy

**Authors:** Khandal, Shreya (/jspui/browse?type=author&value=Khandal%2C+Shreya)

**Keywords:** Chemical Sciences  
Molecular structure  
Correlation function plots  
Second order SHG

**Issue Date:** 10-Sep-2018

**Publisher:** IISERM

**Abstract:** So far, the time resolution for probing polar solvation dynamics has been limited to, from few tens of picoseconds using fluorescence lifetime measurement (by TCSPC technique) down to ~200 femtoseconds using fluorescence time-gating measurement (by fluorescence up-conversion technique). However, a substantial part (nearly 80%) of solvation completes within ~200 femtoseconds which demands probing early time solvation dynamics. We probed solvation dynamics using non-collinear pump probe spectroscopy by measuring the stimulated emission signal and collinear pump-probe spectroscopy by measuring only the fluorescence signal. We will present solvation dynamics studies of an NIR dye (DNTTCl) in two polar solvents (ethanol and ethylene glycol) using degenerate pump probe spectroscopy at 800 nm as well as fluorescence detected pump-probe spectroscopy. Our results show that much of the difference in solvation correlation function is observed within 1 picosecond.

**URI:** <http://hdl.handle.net/123456789/1045> (<http://hdl.handle.net/123456789/1045>)


**Appears in** MS-13 (/jspui/handle/123456789/914)

**Collections:**

Files in This Item:

File	Description	Size	Format	
MS13095.pdf (/jspui/bitstream/123456789/1045/3/MS13095.pdf)		223.24 kB	Adobe PDF	<a href="#">View/Open (/jspui/bitstream/123456789/1045/3/MS13095.pdf)</a>

Show full item record (</jspui/handle/123456789/1045?mode=full>)

 (</jspui/handle/123456789/1045/statistics>)

Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.