



# The Dantus Research Group

MICHIGAN STATE  
UNIVERSITY

Our research group treats photons as if they were chemical reagents. We use lasers for inducing and controlling chemical reactions, as well as for detecting and identifying chemical compounds.

## Our projects include:

- **Understanding laser-molecule interactions**

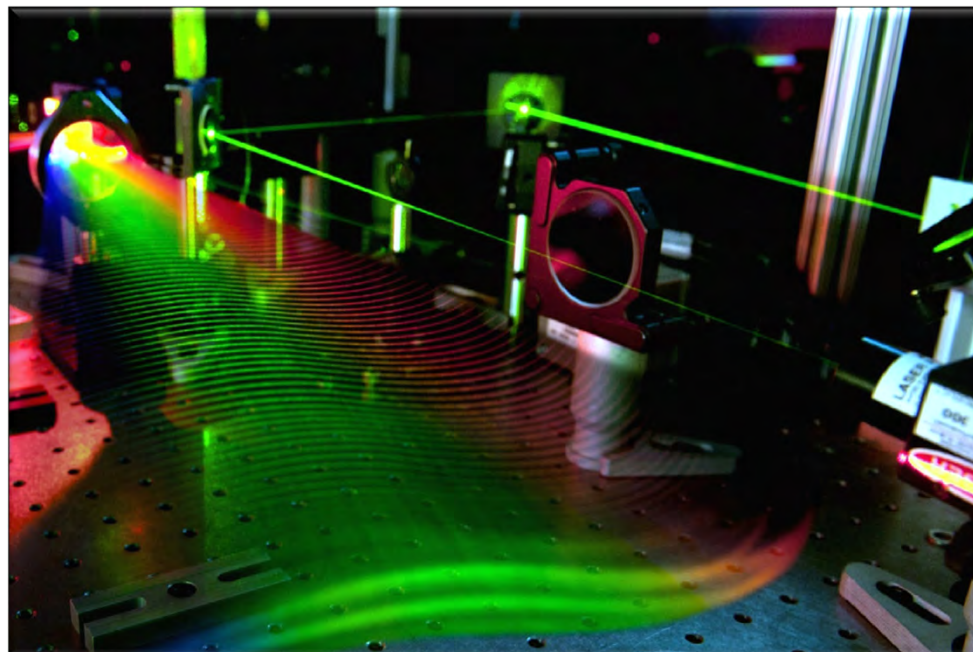
*Very intense  $10^{15}$  Watts are of interest because they blow the electrons off molecules as a first step.*

- **Advanced biomedical imaging**

*We are working with collaborators to develop a laser based method to optically detect melanoma.*

- **Detection of explosive traces at a distance**

*We are working on a laser to detect explosives.*



Our group typically has 10-12 researchers that range from high-school students (1 or 2), undergraduate students (2-3), graduate students (5-6) and postdoctoral scientists (2).

Undergraduate students in the summer join a sub-group that is already involved in one of the research projects above. Students are trained in the use of lasers and actively participate in sample preparation, laser experiments, data acquisition, data processing, and in cases where projects proceed quickly even on manuscript preparation for publication. Students intrigued by physical chemistry in particular optical spectroscopy and quantum mechanics, and analytical chemistry will find our work very exciting. If you have any question contact Dr. Dantus directly ([dantus@msu.edu](mailto:dantus@msu.edu))

