

The Jimenez Lab

working at the intersection of optics, chemical physics and biology
(<http://jila.colorado.edu/jimenez/>)

Search

Explore: [CU A-Z](#)(<http://www.colorado.edu/atoz/>)| [NIST](http://nist.gov/) (<http://nist.gov/>) | [JILA](#)(<http://jila.colorado.edu/>)
[Home](http://jila.colorado.edu/jimenez/) (<http://jila.colorado.edu/jimenez/>)

[Research](http://jila.colorado.edu/jimenez/research/research) (<http://jila.colorado.edu/jimenez/research/research>)

[Publications](http://jila.colorado.edu/jimenez/publications/scientific/year) (<http://jila.colorado.edu/jimenez/publications/scientific/year>)

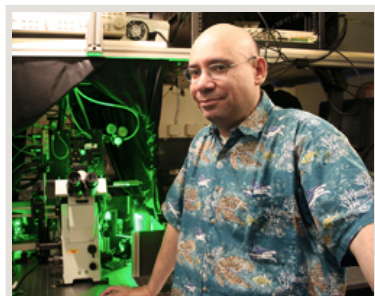
[People](http://jila.colorado.edu/jimenez/people/current-jimenez-laboratory-group) (<http://jila.colorado.edu/jimenez/people/current-jimenez-laboratory-group>)

[Multimedia](http://jila.colorado.edu/jimenez/multimedia/multimedia) (<http://jila.colorado.edu/jimenez/multimedia/multimedia>)

[Classes](http://jila.colorado.edu/jimenez/classes/chem-4531) (<http://jila.colorado.edu/jimenez/classes/chem-4531>)

[Jobs](http://jila.colorado.edu/jimenez/jobs/job-openings) (<http://jila.colorado.edu/jimenez/jobs/job-openings>)

About Ralph Jimenez

 (<http://jila.colorado.edu/jimenez/bio/about-ralph-jimenez>)


Overview

My interests broadly span experimental studies of protein dynamics and photophysics **in vitro** and **in vivo**, and development of optical tools to explore biological function. Over the past several years we developed innovative new methodology integrating spectroscopy with flow cytometry. Although we continue to deepen our understanding of molecular dynamics with femtosecond and

longer-timescale spectroscopy **in vitro**, we have broken new ground by developing microfluidics-based single-cell spectroscopy techniques to characterize photophysics **in vivo** on 10^5 -member libraries of fluorescent proteins. We are performing selections to isolate clones with new properties and discover structure-dynamics relationships that would not be apparent from conventional biophysical studies focusing on a small number of variants. We have also developed a microfluidic method to initiate and monitor the dynamics of ratiometric biosensors in single cells within a population, and the capability to sort libraries based on the magnitude or kinetics of the sensor response. These and other novel technologies developed in my lab are integral to our directed evolution strategies for creating new biophotonic functionalities. The payoffs we envision range from discovery of new molecular dynamics underlying the unique photophysical properties of chromoproteins to biological applications benefitting from the improved visualization and control of cellular events.

Principal Investigator

Affiliations

JILA Fellow

Associate Professor Adjoint,
Department of Chemistry &
Biochemistry

Research Areas

Biophysics

Chemical Physics

Email

rjimenez@jila.colorado.edu

Phone

303-492-8439 (phone)

303-492-5235 (fax)

Address

JILA, University of Colorado 440
UCB Boulder, CO 80309-0440

Affiliations

JILA (<http://jila.colorado.edu/>) | JILA AMO (<http://jila-ammo.colorado.edu/>) | CU (<http://www.colorado.edu/>) | NIST (<http://nist.gov/>) | Chem-BioChem (<http://chem.colorado.edu/>)