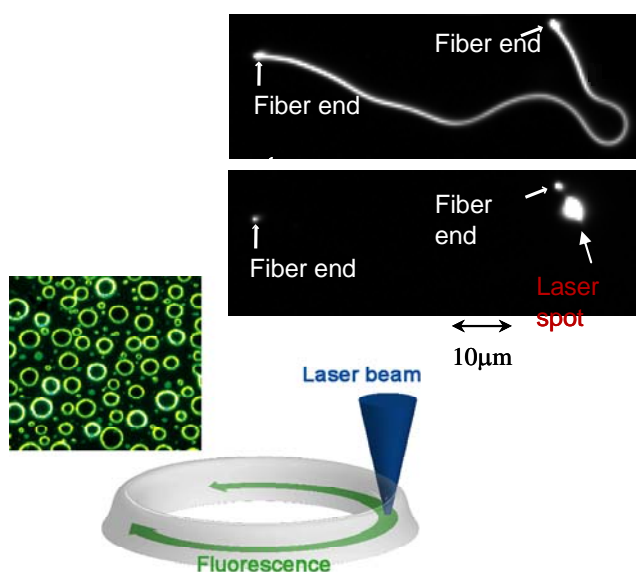


Optical Properties of Organic Nanofibers and Nanorings

We found that thiocyanine dye molecules form giant fiber-like aggregates. The top-right panel of the figure is microscope images of the aggregate fibers. Their diameter is about 100 nm, and their length can be of the order of millimeters. When we illuminate any point on the fiber by a laser beam, emitted luminescence is propagated to the end of the fiber and transmitted to the outside. The small propagation loss of this process suggests that the luminescence light is propagated in the fiber as an exciton polariton. The aggregate fibers are flexible so that ring-like structures can also be fabricated as shown in the left panel. Thus we are examining their application to optical waveguides and ring resonators of nanometer size.



(Top-right) microscope images of molecular aggregate fibers and their light emission by laser irradiation, (left) microscope image of molecular aggregate rings, (bottom) illustration of luminescence propagation in the ring. K. Takazawa, *Chem. Mat.* **19**, 5293 (2007).