

Chemistry in Pictures: Complicated Crystals

by **Craig Bettenhausen**

July 19, 2022

MOST POPULAR IN
SYNTHESIS

Molecular containers go
supersized

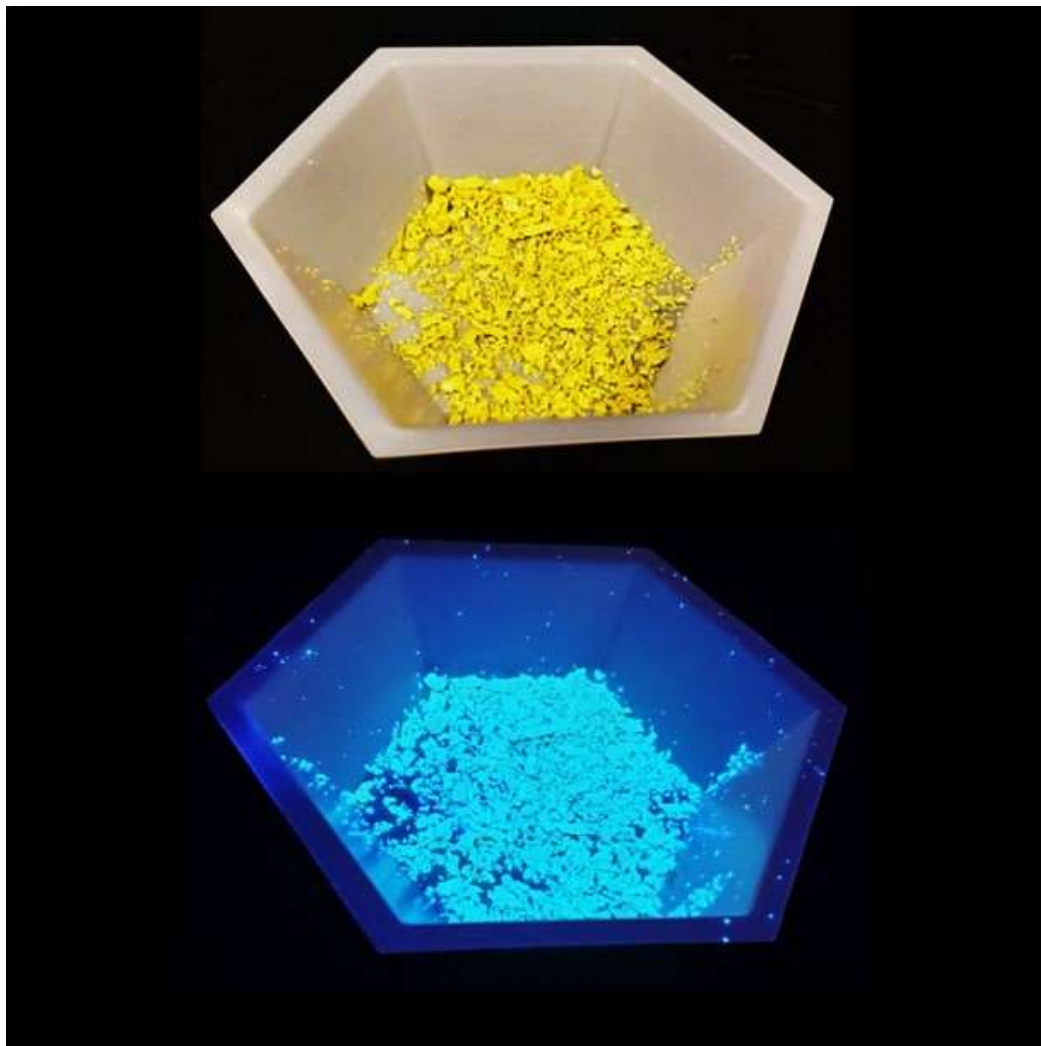
Nabbing nitrogen from the air to
make fertilizer on the farm

Molecular-editing reaction
expands indoles with N

Morphine

One-step synthesis of urea could
green up the fertilizer's act

Ming Joo Koh



Credit: Submitted by Harmeet Singh Bhoday

If perfectly dipole parallel-aligned organic molecular crystals sound like complex things to study, well, you're right. Rainer Glaser's group, now at Missouri University of Science and Technology, has been making them and interrogating their optical properties since 1995, when it first synthesized 4-bromoacetophenone 4-methoxyacetophenone azine. You'd expect a polar molecule to crystalize with the negatively charged end of one adjacent to the positively charged end of the next, but Glaser's students found the opposite arrangement. The counterintuitive crystal packing yields polar materials that interact with polarized light in interesting and potentially useful ways. Students currently preparing butadiene derivatives of the original Glaser-lab workhorse molecule noticed an unexpected ultraviolet fluorescence from their target molecule, so they grabbed these two photos, in normal light (top) and under UV light (bottom), as they were weighing a sample.

Submitted by Harmeet Singh Bhoday

Do science. Take pictures. Win money. **Enter our photo contest here.**

[Click here to see more Chemistry in Pictures.](#)

CORRECTION:

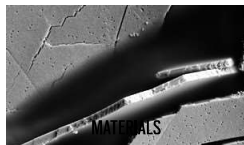
This article was updated on Aug. 9, 2022, to correct Rainer Glaser's affiliation. Glaser's lab is at Missouri University of Science and Technology, not the University of Missouri.

Chemical & Engineering News

ISSN 0009-2347

Copyright © 2022 American Chemical Society

YOU MIGHT ALSO LIKE...



Chemistry in Pictures: Supercrystal snapshot



Chemistry in Pictures: Rose in a flask



Chemistry in Pictures: Fluorescence with a twist

MOST POPULAR IN SYNTHESIS

Molecular containers go supersized

Nabbing nitrogen from the air to make fertilizer on the farm

Molecular-editing reaction expands indoles with N

Morphine

One-step synthesis of urea could green up the fertilizer's act

Ming Joo Koh

JOIN THE CONVERSATION

 [Contact the reporter](#)

 [Submit a Letter to the Editor for publication](#)

 [Engage with us on Twitter](#)