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**NEWSTRACK - SCIENCE**

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**Mechanoluminescence study yields new data**

CHAMPAIGN, Ill., May 8 (UPI) -- U.S. scientists studying mechanoluminescence have discovered extensive atomic and molecular spectral [emissions](#) not previously seen in such an event.

Mechanoluminescence is light generated when a crystal, such as sugar or quartz, is fractured by grinding, cleaving or other mechanical means.

Scientists believe mechanoluminescence occurs as a result of the generation of opposite charges along the fracture plane of an asymmetrical or impure crystal. When the charges recombine the surrounding gas is ionized and emits light.

In a previous study, [University of Illinois](#) chemistry Professor Kenneth Suslick and graduate student Nathan Eddingsaas reported a new technique, the sonication of crystal slurries, produced a much more intense mechanoluminescence than grinding.

Sonication involves the use of sound energy to agitate particles or other substances.

The new study involved the sonication of a slurry of recorcinol (sugar) crystals in the liquid paraffin, dodecane. When nitrogen or oxygen was bubbled through the sonicated slurry, the resulting emission spectrum was a thousand times more intense than produced by grinding.

The researchers also saw emission lines not previously reported in a mechanoluminescence event.

The research is detailed online this month in the Journal of the American Chemical Society.

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