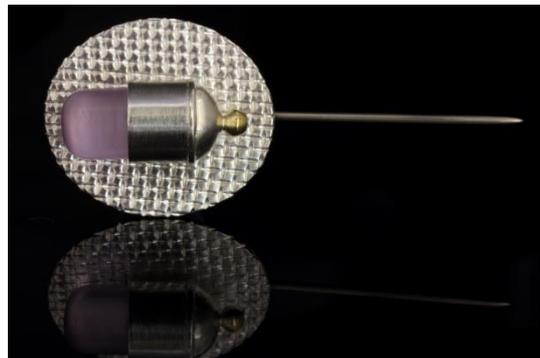


# Corkum's Flashbulb

Sterling silver, Nd YAG laser crystal, 18kt gold, nickel silver.

5.5cm x 2.5cm x 1cm

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Corkum's Flashbulb Image © Green Vale Gallery

## Inspiration:

### *Professor Paul Corkum*

The research of Paul Corkum (Research Chair in Attosecond Photonics) involves generating extremely short pulses of light, like old-fashioned photography flashbulbs, which facilitate the observation of molecules and subatomic particles during chemical and biological reactions. It takes 25 attoseconds for an electron to circle an atom, and Corkum's aim is to build the first 25 attosecond flashbulb. By animating the images generated from these flashes he will make "movies" of chemical and biological reactions involving electrons, atoms, molecules and light<sup>1</sup>.

## Materials:

Sterling silver, Nd YAG laser rod fragment, 18kt gold, nickel silver pin, sterling silver solder.

## Method:

A sterling silver back plate was saw-pierced and roller-printed with a piece of stainless steel mesh (donated) to give it the illusion of flashes of light. A tumbled fragment of Nd YAG laser crystal (donated) was drilled with a small hole using a diamond sintered drill bit in order to attach it to the piece. A sterling silver bezel and nickel silver pin were soldered to the back plate and the piece was brass brushed to give a satin finish. Finally, the Nd YAG crystal was secured in its bezel.

## Results:

Given Professor Corkum's long career in lasers, a tumbled fragment of Nd-YAG (neodymium-doped yttrium aluminium garnet: Nd: Y<sub>3</sub>Al<sub>5</sub>O<sub>12</sub>) laser rod seemed an appropriate material to construct a flashbulb "model". It has thus become the focal point for "Corkum's flashbulb" pin. The crystal is quite luminous and appears to glow - and ready to fire - or is it already firing and we can't see it? If you blink you may miss it.....

The box is made from salvaged Australian native timbers - a Queensland Maple lid (*Flindersia brayleyana*) and Blue Gum (*Eucalyptus tereticornis*) body. Made for Labpunk and the AIP Congress 2014 by Gary Field.

<sup>1</sup><http://www.chairs-chaieres.gc.ca/chairholders-titulaires/profile-eng.aspx?profileID=2222>