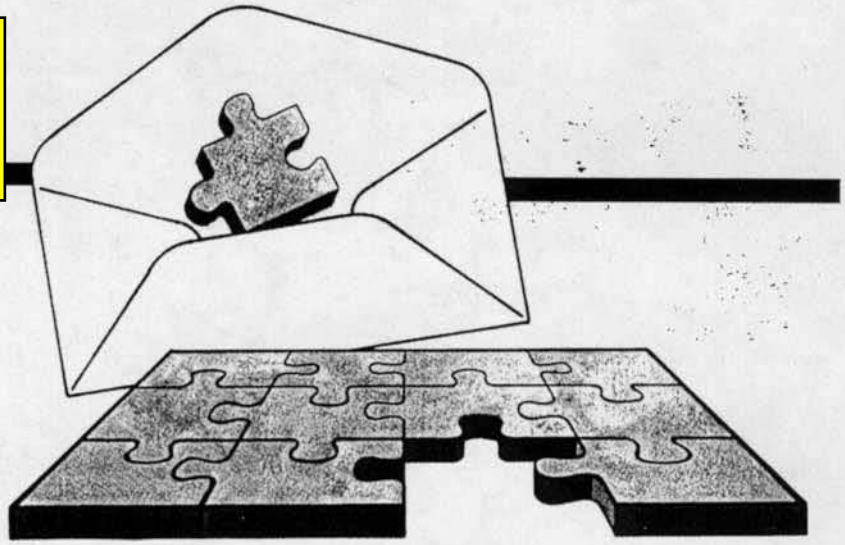
Gordon, R. (1996f). Photonics Problem-Solver: Whole embryo surface.
Photonics Spectra 30(10), 73.



1.5× the shorter axis. The specific gravity of the particles is between 2.6 and 2.65.

Larry Beuthin
Badger Mining Corp.
Berlin, Wis.
Code No. 4408

Low-Intensity Detector

I need a low-intensity detector for a photon-counting application at a 1550-nm wavelength.

J.P. Goedgebuer, Professor
Laboratoire D'Optique
Besançon, France
Code No. 4409

Whole Embryo Surface

I need to record in-focus, time-lapsed images of the whole surface of a 2-mm-diameter newt-like embryo. The embryo is visually opaque, and the cells are as small as 20 µm in diameter. The contrast is good. Motion in the surface is continuous and waves travel at 3 µm/min, so a full set of images must be taken in 10 to 30 s for optimal registration.

Richard Gordon
University of Manitoba
Winnipeg, Manitoba, Canada
Code No. 4410

Autofocus System

I am looking for a real-time autofocus system that will fit into an existing zoom videomicroscope. I will need to discuss the details of the mechanical and electrical interface.

Boaz Kenan
Orbotech Ltd.
Yavne, Israel
Code No. 4411

UV Light Source

Using an Adept vision system, we are orienting and inspecting injector assemblies in an automated system. We need to find a UV light source or camera setup that will interface with the Adept controller and our existing tooling configurations.

Gene Llaneza, Mfg. Engineer
Siemens Automotive
Newport News, Va.
Code No. 4412

Solutions to Problems in Previous Issues

Laminate Measurement

In May, Robert Wistrand asked about measuring laminate copper sheet. Depending on the orientation possibilities of the copper sheets and the conveyor speeds, the requirements he outlined would be satisfied by the use of high-speed linear array CCD cameras positioned at angles to the line of motion and spaced so that the points of the diamond-like outline (of the array's view) extend beyond the greatest possible dimensions of a skewed sheet. Calibration of the system can be done with a master sheet and calibration software after the camera-holding fixture is installed. In operation, the system will offer an array of readings that can be processed for length, width and squareness of the sheet, while allowing considerable skew on the conveyor belt. Lighting and background will need to be controlled, but the conveyor can remain in motion while the readings are made.

Machine vision packagers may be able to support the required hardware and software, or groups such as ours can custom design them.

Robert B. Bertolasi
TD Electronics Inc.
Loves Park, Ill.

Measuring Device

A possible solution to the problem from Gary Fischer in the June issue, on measuring the thickness of a 9-mil-thick oil film on nitric acid in underground nuclear storage tanks, is to fluoresce the oil with ultraviolet light and correlate the thickness of the oil to the intensity of the fluorescent beam. We have been successful in using this technique to measure the thickness of oil film in hard-to-reach areas using a fiber optic probe, and we have used it on oil-film thicknesses of less than 9 mils. The system would be simple — an ultraviolet light source and a detector (PMT or, if there is enough energy, just a silicon detector) — so it could easily be placed on the end effector of a robotic arm.

Tim Peters, Senior Research Scientist
Pacific Northwest National Lab
Richland, Wash.

Force Sensing System

A fiber optic medical instrument under development utilizes a pencil-like probe pressed against tissue. We need to find a system to sense the axially applied force between 100 and 300 g. The system must fit within the barrel of a pencil housing 6mm in diameter and be autoclavable to 134 °C. The OEM sensing resistor disc must be small and require very little displacement.

Irwin Wunderman, Director
Photonic Research
Mountain View, Calif.
Code No. 4413