AUTHOR: None given

TITLE: (6) Pneumatic infrared detector

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TEXT: A pneumatic infrared Golay-type detector, intended for use with the infrared spectrophotometer built by the same Institute, was developed at the Ústav přístrojové techniky ČSAV (Institute of Instrument Engineering, ČSAV), Brno. Compared to thermocouple and bolometer detectors the developed detector has the following advantages: a large circular pick-up area which facilitates design and adjustment of the optical part of the spectrophotometer; a very high threshold sensitivity, equalling that of the highest-quality thermocouple detectors; the design of the electronic amplifier is simpler than for thermocouple and bolometer detectors. The operation of the detector is based on the thermal expansion of gas, whereby the heat is generated by the absorption of the measured infrared radiation which hits the receiving surface of the detector. The expanding gas exerts pressure on a thin membrane which closes the pressure chamber.

The membrane deforms as a result of pressure and its curvature is measured by means of a suitable optical system. The performance of the instrument is equal to and even better than that of foreign detectors of this type. It has been successfully tested in a small infrared spectrophotometer and it is to be used in further spectrophotometers being developed at the Institute.