

the signal-to-noise concept involves, of course, a logical confusion. The signal-to-noise ratio is a combined property of a detector and a signal, whereas the intent of the above sentence was to describe a property pertaining only to the detector.

To this difficulty there is one solution, and I believe only one solution, which is sound both psychologically and logically. The solution is to introduce as an independent concept the reciprocal of the noise-equivalent radiation input, and to give this concept a name. For some time now I have been using the name 'detectivity' for the reciprocal of the noise equivalent input, and I now propose this term for general use. With this concept the sentence discussed above becomes simply, 'Detector *A* has more detectivity than detector *B*'.

The need for this concept was set forth in an unpublished report dated March 18, 1950; in the report I suggested the terms 'detectivity' or 'recinepity' for the concept and asked for better suggestions. In a reply dated July 20, 1950, Dr. Peter B. Fellgett suggested the term 'detectivity', which I now prefer.

'Detectivity' is a very appropriate name for this concept. It is self-descriptive, and it matches the companion terms 'sensitivity' and 'responsivity'; it is translated easily into other languages. The primary disadvantage is that it uses as basis the word 'detective', which is usually employed with another significance.

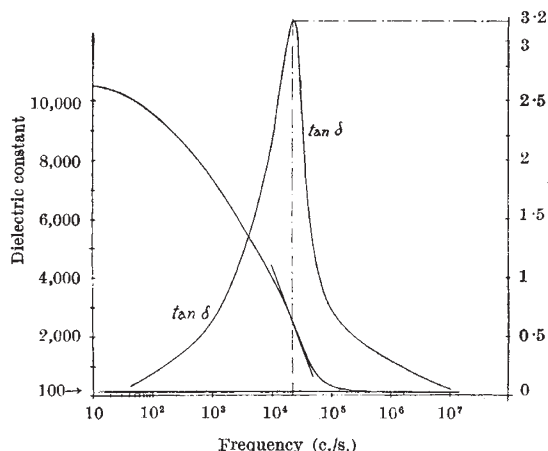
In summary, a need exists for a simple method of describing that property of a radiation detector which is greater for the detector that achieves a greater signal-to-noise ratio on a given radiation signal. Both the concept and a name for the concept have been lacking heretofore. 'Detectivity' is suggested as the name for the concept, and the detectivity is defined as the reciprocal of the noise equivalent input of a detector.

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A New Dielectric Material

I HAVE prepared a ceramic material which, although apparently being pure rutile, has quite different dielectric properties. It was obtained by heating pure titanium oxide (TiO_2) to a temperature



of 1,400° C., as described elsewhere¹. X-ray analysis leads to the same Debye-Scherrer pattern as rutile (axis ratio 1 : 0.911). The frequency dependence of the dielectric constant and of $\tan \theta$ (θ = loss angle) of this substance is shown in the accompanying graph, measured at the Centre d'études des Télécommunications, Paris, by courtesy of the director, M. Caye. This substance thus exhibits a Debye type of loss connected with a very high static dielectric constant.

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Aug. 29.

¹ Italian Patent 7592, Aug. 9, 1951.

Zoological Nomenclature

As from March 1, 1953, the International Commission on Zoological Nomenclature will start to vote on the following cases involving the possible use of its plenary powers for the purposes specified in brackets against each entry. Full particulars of these cases were published on August 29, 1952, in the *Bulletin of Zoological Nomenclature*, those relating to cases (1) to (4) in Part 10 and those relating to cases (5) to (14) in Part 11 of vol. 6.

(1) *Sphinx* Linnæus, 1758 (Cl. Insecta, Ord. Lepidoptera) (designation of type species); (2) Houttuyn (M.H.), 1787, *Animalium Musei Houttuynensi Index* (suppression); (3) *Phalœna* Linnæus, 1758 (Cl. Insecta, Ord. Lepidoptera) (suppression, and validation as of generic status of eight terms used by Linnæus for groups thereof: *Bombyx*, *Noctua*, *Geometra*, *Tortrix*, *Pyrælis*, *Tinea*, *Alucita*, as from 1758, *Attacus*, as from 1767; and names of families based thereon; alternatively, for *Bombyx* and *Pyrælis* (as from Fabricius, 1775) (designation of type species); (4) *Episema* Ochsenheimer, 1816 (Cl. Insecta, Ord. Lepidoptera) (designation of type species, thereby also preserving *Diloba* Boisduval, 1840); (5) *cydippe* Linnæus, 1761, *Papilio*, and *adippe* Linnæus, 1767, *Papilio* (Cl. Insecta, Ord. Lepidoptera) (suppression, and validation of *adippe* Denis and Schiffermüller, 1775, *Papilio*); (6) *hispidus* Olivier, 1811, *Palæmon* (Cl. Crustacea, Ord. Decapoda) (validation); (7) *Sicyonia* Milne Edwards, 1830 (Cl. Crustacea, Ord. Decapoda) (validation); (8) *Hymenocera* Latreille, 1819 (Cl. Crustacea, Order Decapoda) (designation of type species); (9) *Pyramidella* Lamarck, 1799 (Cl. Gastropoda, Sub-Cl. Prosobranchia) (validation, by suppression of *Plotia* Roeding, 1798); (10) *Dasypeltis* Wagler, 1830 (Cl. Reptilia) (validation); (11) *Trichopsylla* Kolenati, 1863 (Cl. Insecta, Ord. Siphonaptera) (suppression); (12) *pungens* Walcknaer, 1802, *Pulex*, and *vespertilionis* Dugès, 1832, *Pulex* (Cl. Insecta, Ord. Siphonaptera) (suppression); (13) *simus* Linnæus, 1767, *Coluber* (Cl. Reptilia) (determination of application); (14) *Mellita* Agassiz, 1841 (Cl. Echinoidea) (validation)

Comments on the above cases should be sent to me as soon as possible.

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on Zoological Nomenclature).

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