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Bob

TEMPERATURE DEPENDANCE OF PHOTOTRIODE SENSITIVITY

They don't publish for VPTs.

A temperature coefficient of - 0.5 %/degree has been found at CERN and this figure seems indeed high compared to what we know and publish. Many comments can be made to that (we only refer to blue sensitivity).

- When testing this by successive cycling sequence (for example 20° - 60° - 20° - 60° - etc ...) a reversible behaviour is generally found only after 2 or 3 cycles and, only then, a temperature coefficient can be defined. Before that, any figure can be found, and this can be called hysteresis (irreversible variation). How was the CERN figure obtained ? How many tubes were tested ? Will ask Pat. Same as Barry found ?

- We have never seen for a PMT temperature coefficient higher than 0.3 %, and very seldom over 0.2 % per degree.

- Some tubes of the competition have all their dynodes made of the same material than the cathode. If the secondary emission temperature coefficient was as high as 0.1 %, total gain coefficient would be 1 % per degree, which is terrific and was never observed, as far as I know.

But I bet they are not sprayed in the same way !

- Nevertheless, a phototriode has some very special feetures (for example the variation of the secondary emitting layer over the surface is very large ; when it is too thick, the compound deviates from normal composition and this can produce temperature variation of composition).

AHA

- Anyhow, there is no physical law making us able to predict the temperature behaviour of any emissivity characteristics, except thermonionic emission... And I can accept such a figure, but I do not feel yet the necessity to start an extensive test campaign to confirm this.

Not yet sure how to reply. Will get further information from Pat first

Paul.

Diffusion to :

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