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Utilising polyphenylene oxide for high exposure solar UVA dosimetry

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Abstract. A personal UV dosimeter that can quantitatively assess high exposure solar UVA exposures has been developed. The chemical polyphenylene oxide has been previously reported on its ability to measure high UVB exposures. This current research has found that polyphenylene oxide, cast in thin film form, is responsive to both the UVA and UVB parts of the solar spectrum. Further to this, the UVB wavelengths were filtered out with the use of mylar. This combined system responded to the UVA wavelengths only and underwent a change in optical absorbance as a result of UVA exposure. Preliminary results indicate that this UVA dosimeter saturates steadily when exposed to sunlight and can measure exposures of more than 20 MJ/m^2 of solar UVA radiation with an uncertainty level of no more than ±5%.

Final Revised Paper (PDF, 372 KB) Discussion Paper (ACPD)

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