





A Novel Approach of Measuring Instrumental G-Factor

Hung Doan¹, Jose Chavez¹, Luca Ceresa¹, Harris To², Zygmunt Gryczynski¹, Ignacy Gryczynski³ ¹Department of Physics & Astronomy, ²Trinity Valley School, Fort Worth, TX, 76132, USA, ³ Microbiology - Immunology & Genetics UNT Health Science Center, Fort Worth, 76107.



Cell Phone





Our new approach will be the revolution of measuring the G-Factor for every spectrophotometer that involve polarizations measurement. It is not only effortless beneficial but also financially advanced as well, which help correcting the detecting bias toward the polarization of light, thus yield meaningful results for a majority of polarization studies.

This work was supported by the NSF grant (CBET 1403326) and NIH grants (R21EB017985 and R01EB12003).

York, 1999.

2. E. Hecht, Optics, Addison-Wesley, Reading, 1990

How Practical is the New Method

Cuvette with Scatterer

45°/135° Polarizer

Side View

Top View

Side view of fluorometer with the cell phone installed on the left entrance into the fluorometer and top view of open sample compartment with indicated position of cuvette and $45^{\circ}/135^{\circ}$ polarizer.



Cumulative G-factor determined using $45^{\circ}/135^{\circ}$ polarizer. At the 500 nm – 700 nm range

we overlay G-factor determined using cell phone LED light

Conclusions

Acknowledgements

References

1. J.R. Lakowicz, "Pirnciple of Fluorescence Spectroscopy," Kluwer Academics/Plenum Publishers, New