Optically pumped magnetometers for industrial applications

L. Schmieder[1], P. A. Koss[1] and F. Kühnemann[1]

[1]Fraunhofer Institute IPM, Freiburg, Germany

Optically pumped magnetometers (OPM) offer a unique combination of high sensitivity, miniaturization and simplicity of operation. This combination makes OPM an interesting candidate for wider industrial application. The first commercial laser pumped OPM have appeared a few years ago. These sensors yield a sub 15 fT/√Hz sensitivity without the need for cryogenic temperatures like SQUID sensors [1]. We propose to use these solutions and build custom systems in the industrial areas of process analytics and material research. There we will exploit the high sensitivity of OPM and combine them with methods like NMR [2]. Thus, low field NMR could be used for multiphase flow metering where OPM measure an NMR signal in a pipe flow setup [3].

References

[1] https://fieldlineinc.com/

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[3] Bilgic, A. M., et al. "B6. 2-Multiphase flow metering with nuclear magnetic resonance spectroscopy." *Proceedings SENSOR 2015* (2015): 292-297.