

# Optical fiber sensors as a non-invasive technology to the central arterial pressure assessment

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## Abstract

An important factor in the evaluation of cardiovascular risk is the control and monitoring of hypertension. In this presentation fiber optic solutions are explored in the acquisition of the pulse wave in the carotid artery, to analyze its morphology and calculate the central arterial pressure. The performance of the developed probe was compared to a commercial device in a hypertensive cohort. Invasive testes were also performed, using as reference pressure waves obtained in the lumen of the aortic artery, in the context of cardiac catheterization [1]. In clinical studies, it was obtained very strong correlation coefficients and mean pressure differences in the range of commercial devices. It can be concluded that this solution arises as a promising low-cost alternative to the electromechanical arterial pressure devices available on the market.

**Keywords:** Biomedical fiber sensors, hypertension, cardiovascular monitoring.

## References

- [1] C. Leitão, P. Antunes, V. Afreixo, P. André et al. Comparison study of carotid distension waves measured with a non-invasive optical fibre sensor and aortic invasive pressure waves, 26th European Meeting on Hypertension and Cardiovascular Protection, Journal of Hypertension, 34, e-Supplement 2, 2016.