Contribution ID: **239** Type: **Oral**

Optically Remote Noncontact Heart Rates Sensing Technique

Wednesday 24 May 2017 17:50 (15 minutes)

Heart rate monitoring via optically remote noncontact technique was reported in this research. A green laser (5mW, 532 ± 10 nm) was projected onto the left carotid artery. The reflected laser light on the screen carried the deviation of the interference patterns. The interference patterns were recorded by the digital camera (Canon EOS 1100D).The recorded videos of the interference patterns were frame by frame analyzed by 2 standard digital image processing (DIP) techniques, Block Matching (BM) and Optical Flow (OF) techniques. The region of interest (ROI) pixels within the interference patterns were analyzed for periodically changes of the interference patterns due to the heart pumping action. Both results of BM and OF techniques were compared with the reference medical heart rate monitoring device (Polar FT7) by which a contact measurement using pulse transit technique. The results obtained from BM technique was 74.67 bpm (beats per minute) and OF technique was 75.95 bpm. Those results when compared with the reference value of 75.46 ± 1 bpm, the errors were found to be 1.05% and 0.65%, respectively.

Author: Ms THONGKONGOUM, Waraporn (Department of Physics, KMUTT)

Co-authors: Prof. LIMSUWAN, Pichet (Department of Physics, KMUTT); Dr BOONDUANG, Surapon (Department of Physics, KMUTT)

Presenter: Ms THONGKONGOUM, Waraporn (Department of Physics, KMUTT)

Session Classification: A3: Optics and Photonics

Track Classification: Optics, Non-linear optics, Laser Physics, Ultrafast Phenomena