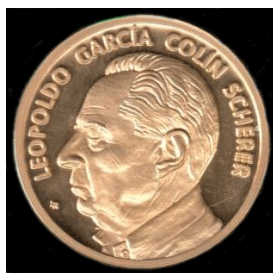


VII Leopoldo García-Colín Mexican Meeting on Mathematical and Experimental Physics



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TUPAK GARCÍA: Photoacoustic analysis during laser synthesis and processing of colloids

Monday, 17 February 2020 12:45 (30 minutes)

Nanoparticles (NPs) of Au and Ag were obtained by laser synthesis and processing of colloids, including laser ablation, fragmentation and melting in liquids. Some parameters as the laser pulse energy (from few mJ to 100 mJ) and repetition rate of the laser pulses (RRLP, in the range from 1–10 Hz), as well as the lens to target distance (LTD) were varied, which produced changes in the concentrations and dimensions of synthesized NPs. The synthesis process and resulting Ag-NPs colloids were studied by a pulsed photoacoustic technique. Characteristic parameters of PA signals such as bubble collapse time, arrival time and root mean square were determined as functions of the number of laser pulses, RRLP and LTD. For comparison, other techniques as UV-Vis-IR analysis, atomic absorption spectroscopy, electron microscopy, as well as the measurement of the transmission of the laser pulses through the colloid were used. The results show that the photoacoustic analysis can be used in-situ and in real-time for obtaining useful information on both the synthesis process and the colloids themselves.

Session Classification: PLENARY TALKS

Track Classification: SYMPOSIUM ON LASER ABLATION