**PhD Physics course at Bari University ( XXXII Cycle)**

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| **Title** | **Optical sensors and spectroscopic techniques** |
| **Proponent** | **Prof. Vincenzo Spagnolo**  **Dr. Pietro Patimisco** |
| **# CFU**  **(1 CFU = 8 hours)** | **2 CFU** |
| **Schedule** | **June 2016** |
| **Brief Summary of the course** | Short course on Raman and photoacoustic spectroscopies and optical trace gas sensing |
| **Programme** | Raman Spectroscopy bases. Raman spectroscopy of crystal sample and related selection rules, Raman spectroscopy applications. Raman AFM.  Laser absorption spectroscopy of gases.  Photoacoustic spectroscopy. Piezoelectric and pyroelectric sensors.  Laser beam profiling.  Quartz tuning fork design and realization.  Quartz enhanced photoacoustic spectroscopy (QEPAS).  QEPAS sensors for trace gas detection. |
| **Recommended texts** | Lessons Slide |
| **Assessment methods** | Oral examination |