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Session GP05 - Poster Session: Metals, Semiconductors and Superconductors I.  
*POSTER session, Monday afternoon, March 22*  
*Hallway, GWCC*

## [\[GP05.18\] Stress mapping in CVD diamond films by micro-Raman spectroscopy.](#)

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Micro-Raman spectroscopy was used to map the local stress distribution in CVD diamond films, grown on silicon substrates. A detailed analysis of the position and bandwidth (FWHM) of the characteristic diamond peak was made. Bandwidth measurements were corrected for the spectrometer transfer function. A simple technique for deconvolving the theoretical Lorentzian Raman lineshape from the measured Raman profile was implemented. No assumption about the spectrometer transfer function was made. As a matter of fact we have made a convolution of the theoretical Lorentzian lineshape with the spectrometer's slit width determined by measurement of the profile of a laser line in order to best fit the experimental data. The accuracy of the method was tested exploiting the Raman linewidth of natural Ila diamond as a reference and choosing different slit widths in a wide range. This permitted consistent comparison among different samples studied under various experimental conditions. In some samples strong stress fluctuations (due both to compressive and tensile stress) were observed and correlated to the presence in the films of defects and/or impurities in the polycrystalline films.

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**Stress mapping in CVD diamond films by micro-Raman spectroscopy.** S. BENEDETTI, INFN and Dip. di Fisica, Univ. di Trento, Italy, G. MARIOTTO, INFN and Dip. di Fisica, Univ. di Trento, Italy, J. LEVY, Physics Dept., Univ. of Pittsburgh, USA, C. VINEGONI, Physics Dept., Univ. of Pittsburgh, USA

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Prefer Oral Session  
 Prefer Poster Session

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Special instructions: Membership pending.

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