

## Supporting information

# Electron transfer across germanium – polyelectrolyte – gold nano-particle interface: convenient detection and application for sensing

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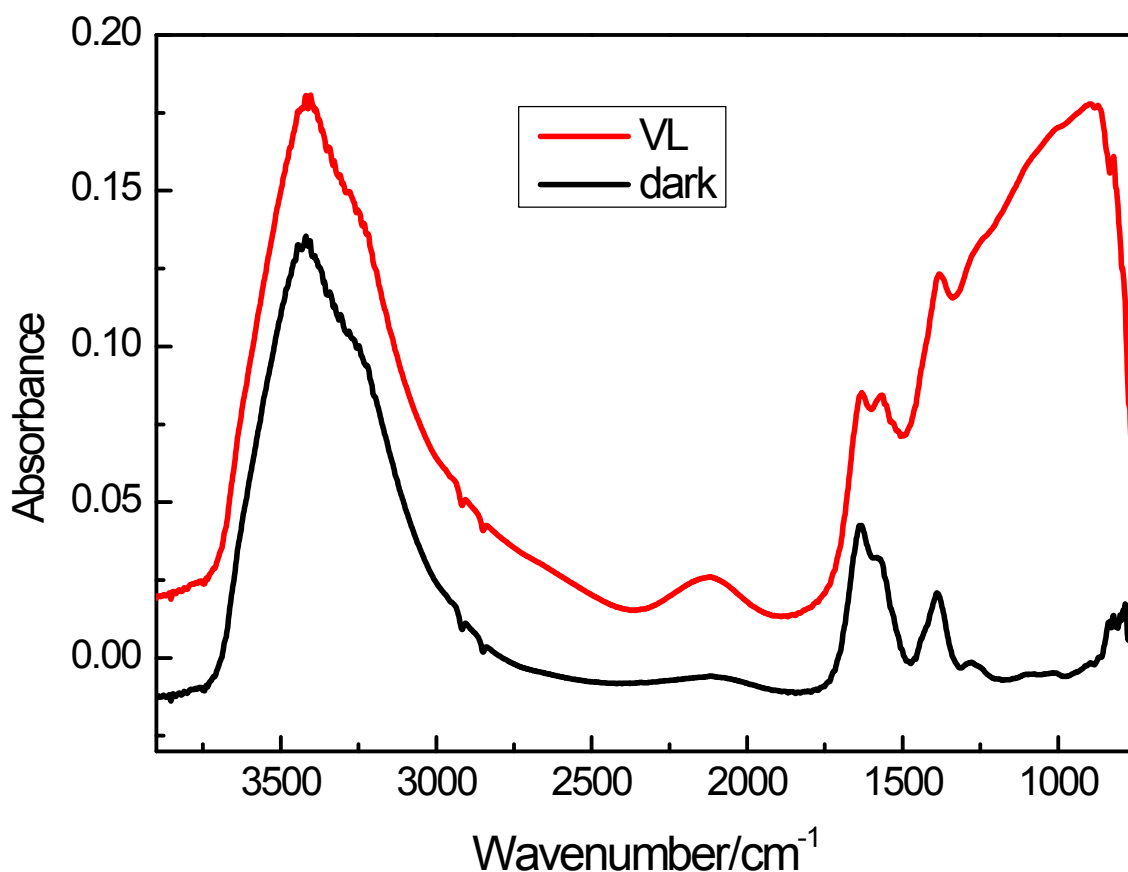


Figure 3. ATR-IR spectra of a Ge – PAH – GNP sample. The black curve corresponds to the spectrum recorded in the dark after double layer of GNPs adsorption and washing steps, whereas the red curve was recorded during illumination by a Xe lamp. Reference spectrum was measured just before GNPs adsorption. First of all of 40 minutes of GNPs adsorption was done on PAH modified Ge ATR crystal surface to form a single layer. Then PAH was adsorbed on GNPs to alter their charge and subsequently a 2<sup>nd</sup> layer of GNPs was adsorbed for further 40 minutes.

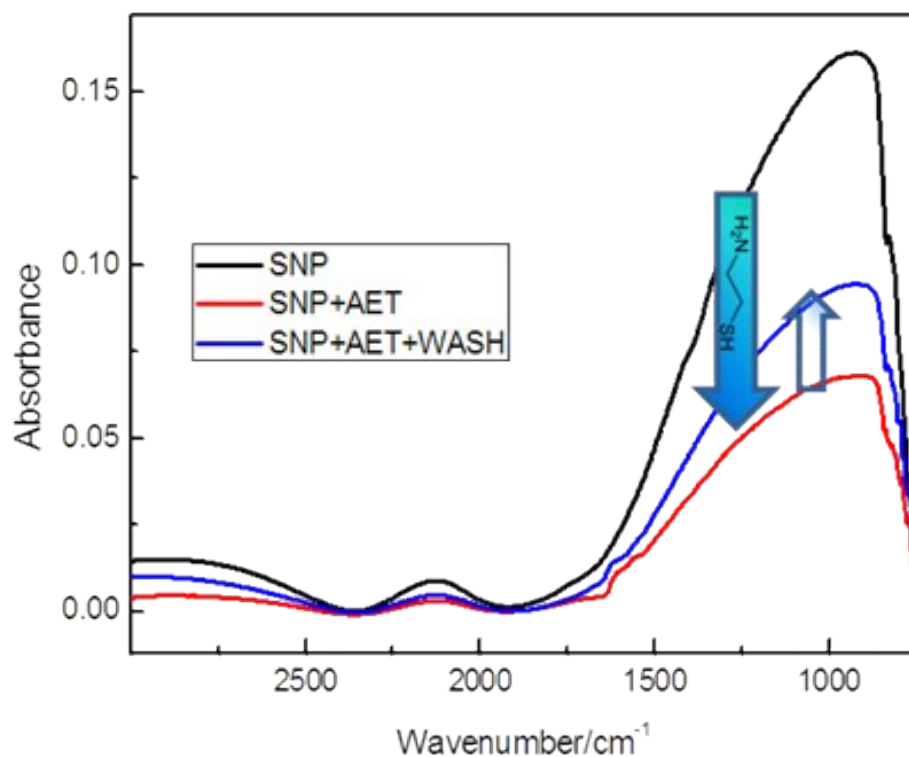


Figure 4. ATR-IR spectra of a Ge – PAH – SNP sample. Reference spectrum was taken after 30 minutes of SNPs adsorption and then 2 hours of washing with neat water. Then one spectrum (black curve) was recorded during illumination by a Xe lamp. Subsequently 30 minutes 2-aminoethanethiol (AET) was flowed over sample and another spectrum was measured (red curve). Finally 30 minutes of water washing was continued and one more spectrum was measured (blue curve).