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Colloidal lenses as universal Raman scattering enhancers

SUPPORTING INFORMATION
SI 1. Optical microscope images of SiO$_2$ spheres on TiO$_2$ thin films: example of sampling procedure

**Figure S1.** Example of SiO$_2$ microspheres drop-casted onto a single-crystal Si substrate coated with anatase (thickness: 20 nm) by ALD (see experimental section for details). Raman spectra were acquired on both individual spheres and planar (without spheres) regions. An example of sampling is displayed. Red arrows indicate two spheres used as $\mu$-lenses. Blue arrows indicate reference planar regions. Scale bar: 5 $\mu$m
SI 2. ERI factor of anatase layer and Si substrate as a function of N.A.

Figure S2. ERI factor (intensity ratio of a Raman mode between SiO$_2$-coated and uncoated samples) for either anatase or Si main Raman modes as a function of N.A of the microscope objective. The error bar is included in the experimental points. See the main text for details.
SI 3. Optical microscope images of SiO$_2$ spheres on Si substrates soaked by methylene blue (MB) solutions: example of sampling procedure.

**Figure S3.** Example of SiO$_2$ microspheres drop-casted onto a single-crystal Si substrate which have been previously soaked in a 10$^{-4}$ M MB solution (see experimental section for details). Raman spectra were acquired on both individual spheres and planar (without spheres) regions. An example of sampling is displayed. Red arrows indicate some spheres used as $\mu$-lenses. Blue arrows indicate the corresponding reference planar regions. The light-blue cross indicates a region where MB is accumulated on the spheres. This type of region was not considered in acquisition of Raman spectra. Scale bar: 5 $\mu$m
SI 4. Au nanoislands: SEM and optical characterization of the Raman active substrate

Figure S4. Inset: SEM image showing the morphology of a gold-coated sample. Scale bar: 20 nm. Main Figure: optical extinction showing the broad surface plasmon resonance band due to gold nanoislands. Reference: uncoated Si substrate. Dashed line indicates the position of the He-NE laser used for Raman experiments.
SI 5. Micromanipulation of colloidal μ-lenses

Figure S5. SEM images showing an example of controlled positioning of SiO$_2$ microspheres by means of a piezo-actuated micromanipulator. Scale bars: 2 μm.