



## Thin films of arylenevinylene oligomers prepared by MAPLE for applications in non-linear optics

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Résumé en anglais	<p>This paper discusses two arylenevinylene oligomers with optical nonlinear properties. Their trans molecular structure was confirmed by Fourier Transform Infrared Spectroscopy and Nuclear Magnetic Resonance. Second Harmonic Generation and two-photon fluorescence have been observed on Matrix Assisted Pulsed Laser Evaporation-deposited thin films. We have seen two local maxima in UV-Vis spectra and a red shift of the photoluminescence peak for carbazole-based oligomer, which can be correlated with a higher conformational flexibility and with strong polarization interactions in the solid state. Scanning Electron Microscopy and Atomic Force Microscopy images have revealed a grainy morphology of the film deposited on titanium and a higher roughness for carbazole-based oligomer. Second harmonic measurements have shown nearly equal values of the second-order nonlinear optical coefficient for the triphenylamine and carbazole-based oligomers for Plaser &lt; 100 mW. z-Scan and x-scan representations of the carbazole-based oligomer film have shown strong two-photon fluorescence intensity inside the sample confirming a volume process, and a strong second harmonic at the surface of the sample determined by the surface morphology.</p>
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