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Data Article

Optical data related to Ag nanoplates utilized for plasmon sensing



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ABSTRACT

In this data paper we share the absorption spectrum of Ag NP ablated in pure water and in presence of trisodium citrate (TSC). We also share the full emission spectrum of the irradiation lamp used for the reshaping process described in the related research paper. The data is related to the research article "Plasmon Sensing and enhancement of laser prepared silver colloids" [1].

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1. Data

Fig. 1 is an OriginPro 8.5 graph that compares absorption spectra of Ag NPs ablated in water, with and without TSC. It can be observed that the presence of TSC causes NP absorption to blue-shift, which indicates the presence of smaller NPs [2].

Fig. 2 is an OriginPro 8.5 graph that shows the emission spectrum of the white light used for irradiation in the related research paper [1]. The spectrum shows two peaks, a narrow one at 450 nm, and a broader one around 580 nm.

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Specifications table

Subject area	Chemistry
More specific subject area	Nanoparticles
Type of data	Graphs, microscopy images
How data was acquired	Spectrophotometry: Cary 60. TEM: STEM-JEOLJEM 2010
Data format	Analyzed,processed
Experimental factors	Presence of TSC, irradiation spectrum, shape of nanoplates, size distribution, plasmon resonance shift
Experimental features	Laser ablation of Ag target, reshaping by irradiation and H ₂ O ₂
Data source location	University of Catania, Italy
Data accessibility	Data are available within the paper
Related research article	M. Condorelli, V. Scardaci, L. D'Urso, O. Puglisi, E. Fazio, G. Compagnini, Plasmon Sensing and enhancement of laser prepared silver colloids, <i>Appl. Surf. Sci.</i> 475 (2019) 633–638 [1]

Value of the data

- The data can be used to understand the optical properties of spherical Ag nanoparticles with and without TSC
- The data can be used to understand the irradiation conditions under which the experiments in Ref. [1] have been performed

2. Experimental design, materials, and methods

A 1064 nm Nd:YAG laser beam is focused onto a silver target, which is immersed into an aqueous solution containing trisodium citrate (TSC) 10 mM.

Optical absorption measurements were performed using a Cary 60 UV–Vis spectrophotometer by Agilent Technologies. Data were exported from the spectrophotometer software and processed in OriginPro 8.5. The as prepared metal NPs are reshaped into nanoplates by adding 30% w/w hydrogen peroxide (H₂O₂) to reach a concentration of 10 µl/ml under white light irradiation, in presence of 18 µM sodium chloride (NaCl).

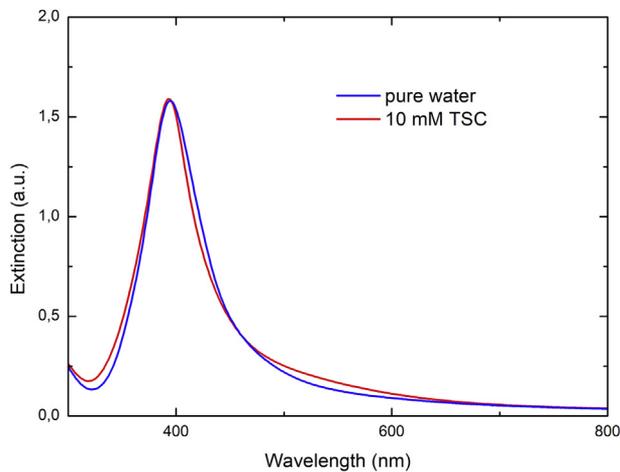


Fig. 1. Absorption spectra of Ag nanoparticles in water, with and without TSC.

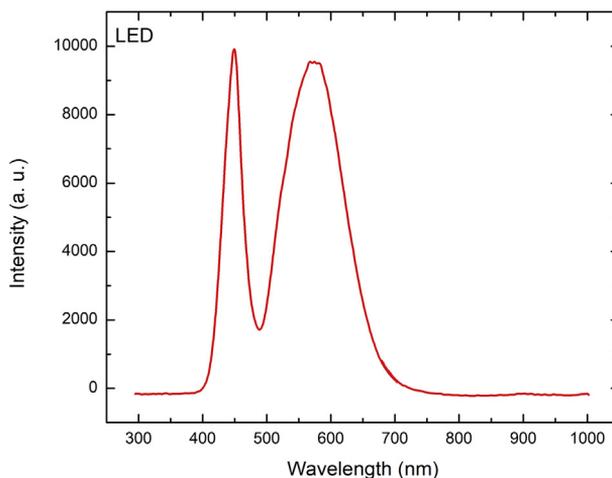


Fig. 2. Emission spectrum of the irradiation lamp.

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Transparency document

Transparency document associated with this article can be found in the online version at <https://doi.org/10.1016/j.dib.2019.103798>.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.dib.2019.103798>.

References

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