Post-Doc Position in Analytical Scanning-Transmission Electron Microscopy.

Deadline 30/09/2020)

esteem3

UCA Universidad de Cádiz

At the forefront of electron microscopy

The position is opened to candidates with a strong background in the use of Analytical STEM techniques, particularly STEM-XEDS, for the compositional analysis of nanostructured materials. Experience in the use of Aberration-Corrected microscopes will also be considered.

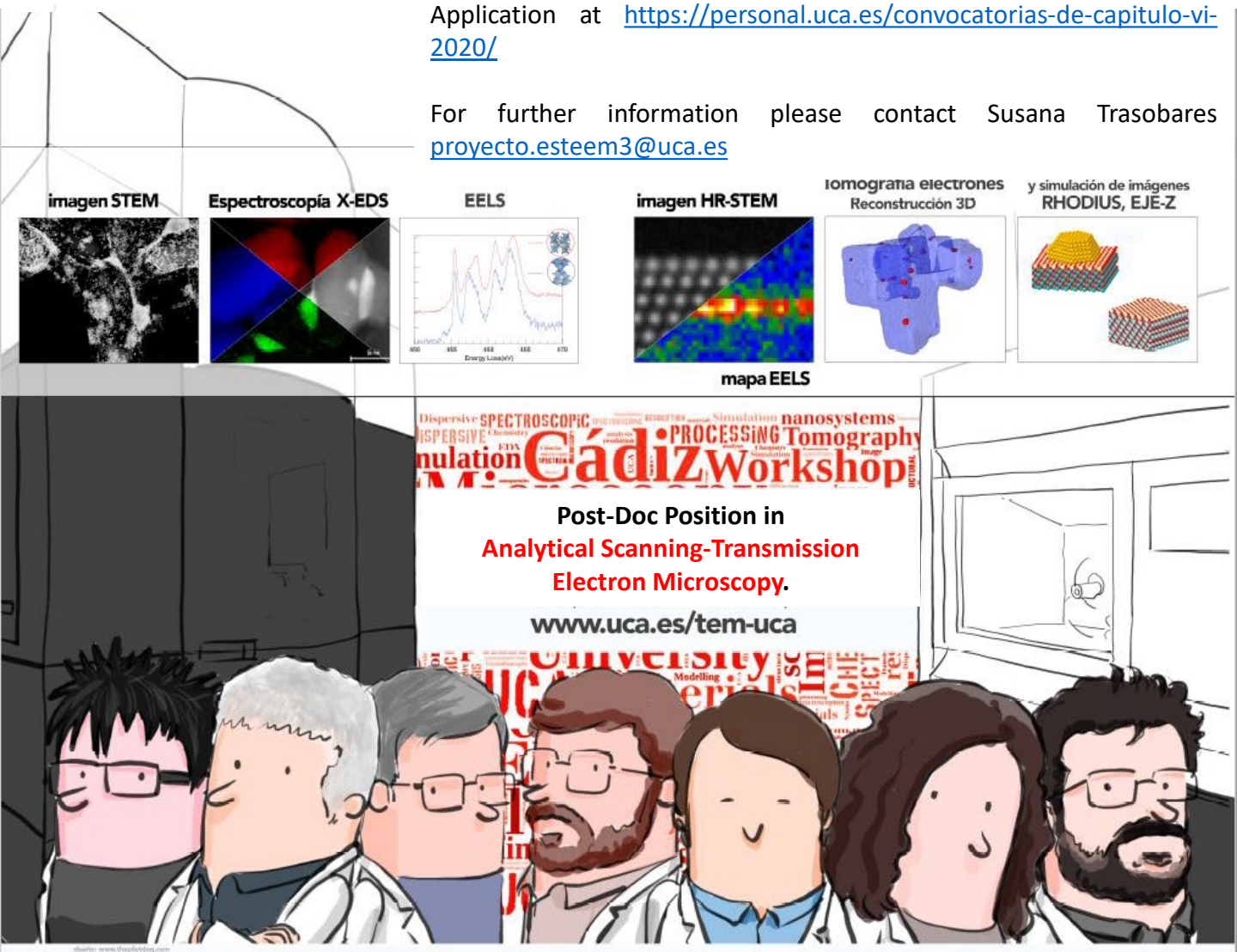
The candidate will join the Structure and Chemistry of Nanomaterials Group at the University of Cádiz (www.uca.es/tem-uca) and will work in the framework of the ESTEEM3 European Project (www.esteem3.eu).

We expect the candidate to focus on the implementation of quantitative techniques (QHR-HAADF, zeta-factor methods in XEDS) to improve the accuracy/precision in the analysis of oxide-type materials as well as nanomaterials involving light elements.

Experiments combining HAADF tomography with analytical techniques will also be part of the work. So, experience in these techniques is also welcome. We also intend to improve, at least at qualitative level, the 3D analysis of nanomaterials using Analytical Electron Tomography techniques.

Application at https://personal.uca.es/convocatorias-de-capitulo-vi-2020/

For further information please contact Susana Trasobares proyecto.esteem3@uca.es



This project has received funding from the European Union's horizon 2020 research and innovation programme under grant agreement n°823717

ANEXO 3

(Ref. 9/2020/3)

1. CATEGORIA: Investigador Doctor Tipo 2.

- Requerirá un mínimo de 2 años de experiencia laboral desde la defensa de la Tesis Doctoral en el momento de presentar la solicitud.

2. TITULACIÓN REQUERIDA: Doctor.

- Imprescindible: Acreditación B2 o conocimiento, demostrable, equivalente del idioma inglés.

3. PROYECTO/CONVENIO/CONTRATO: ESTEEM3.

Financiado por la Comisión Europea – Horizonte 2020.

4. ACTIVIDADES A DESARROLLAR EN EL PUESTO DE TRABAJO CONVOCADO:

- Preparación de muestras TEM.

- Registro de imágenes experimentales HREM, HAADF corregidas en aberraciones.
- Registro de series tomográficas en imagen y espectroscopia.
- Estudios espectroscópicos EDES y EELS.
- Análisis e interpretación de los registros experimentales.
- Realización de experimentos solicitados como acceso transnacional (ESTEEM3 Transnational Access).
- Elaboración de informes y difusión de resultados (reuniones de proyecto, congresos y publicaciones).

5. CARACTERÍSTICAS DEL CONTRATO:

Duración: 12 meses prorrogables hasta la fecha de finalización del proyecto.
Jornada Laboral: Tiempo completo.

Lugar de desarrollo: Facultad de Ciencias (Campus de Puerto Real).

Retribuciones: 2.563,13 euros íntegros mensuales. La formalización del contrato estará condicionada a la obtención de la financiación del mismo, y su duración no podrá superar la autorizada para la ejecución del proyecto.

6. MÉRITOS PREFERENTES/PERFIL:

- Titulación preferente: Doctor en Ciencias (Químicas, Física, Matemáticas).
- Experiencia mínima de 2 años postdoctoral en técnicas de microscopía electrónica con aberraciones corregidas para la caracterización estructural y analítica de materiales.
- Experiencia acreditada en el uso de las técnicas de espectroscopia X-EDS, EELS, tomografía electrónica.
- Experiencia acreditada en el desarrollo de software sobre MATLAB, Python, etc.
- Participación en proyectos de investigación directamente relacionados con las técnicas de microscopía electrónica.

7. RESPONSABLE: Dª. Susana Trasobares Llorente.

ANEXO 3

(Ref.9/2020/3

Required Profile:

PhD in Science (Chemistry, Physics, Material Science)

Minimum 2 years of postdoctoral experience in the use of aberration corrected Analytical STEM techniques, particularly STEM-XEDS, for the compositional analysis of nanostructured materials.

- Essential: English Certification B2 or provable knowledge equivalent of the language.

Affinity criteria

The following items will be considered:

- Experience in the use of spectroscopic techniques as X-EDS and EELS
- Experience in the use of electron tomography for materials characterization
- Experience in the use of software as MATLAB, Python etc…
- Participation in research projects directly related with transmission electron microscopy.

Functions to be assigned to the post-doctoral researcher;

This Post-doctoral offer is part of the ESTEEM3 project (www.esteem3.eu). One of the missions is to provide Transnational Access (TA) to the leading European state-of-the-art Transmission Electron Microscopy (TEM) research infrastructures, facilitating and extending TA services of the most powerful atomic scale characterization techniques in advanced electron microscopy research to a wide range of academic and industrial research communities for the analysis and engineering of novel materials in physical, chemical and biological science. In this context the University of Cadiz give access to FEI TITAN Cubed Themis 60-300 and Thermo Scientific TALOS 200FX microscopes. Additionally the research group FQM334 participates in the work packages WP5 and WP8 of this project, which are focused on the development of new methodologies related to X-EDS spectroscopy and the application of electron microscopy for the characterization of energy related materials. Therefore, the researcher will develop specifically the following tasks:

- TEM sample preparation
- Acquisition of HREM, HAADF images.
- Acquisition of Electron tomography image and spectroscopic tilt series.
- Materials characterization using EDS and EELS
- Analysis and interpretation of experimental data (images and spectra)
- Perform experiments requested within ESTEEM3 Transnational Access.
- Results reports edition and presentation of the obtained results in different forums such as Project meetings, congresses or papers.

8. **RESPONSABLE**: Dª. Susana Trasobares Llorente.