

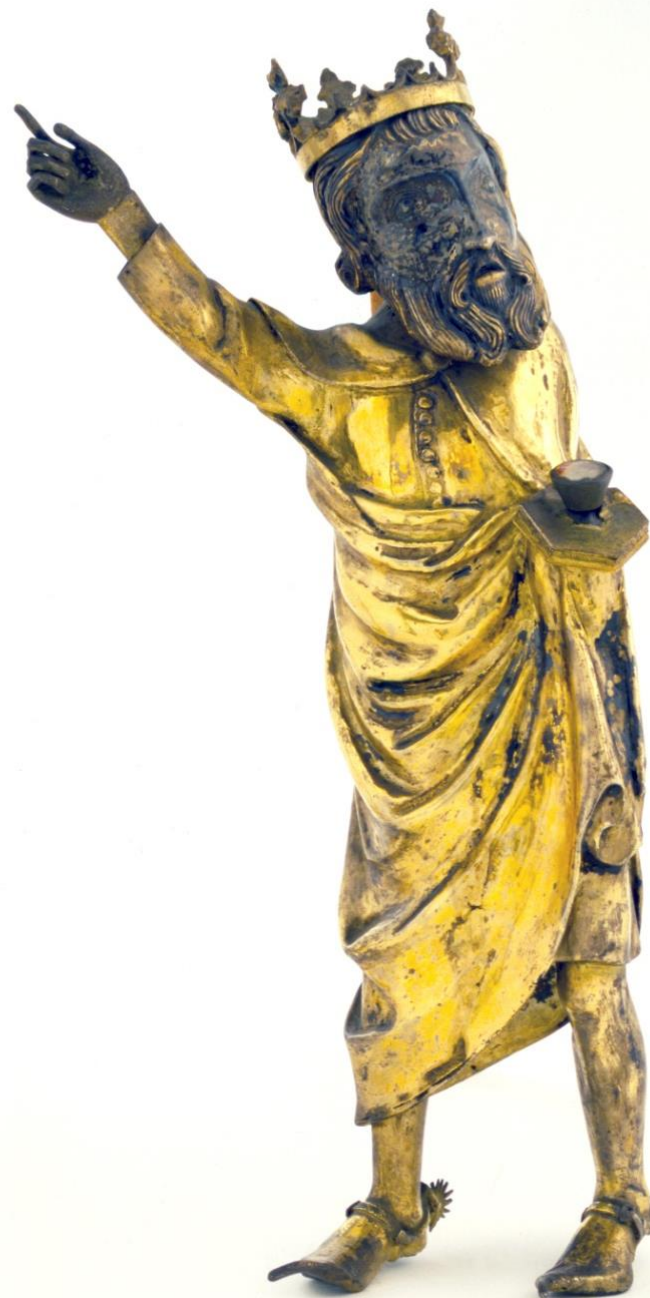


LABORATÓRIO

HERCULES

HERANÇA CULTURAL, ESTUDOS E SALVAGUARDA

antónio candeias





C E N T R O
HERCULES

HERANÇA CULTURAL, ESTUDOS E SALVAGUARDA

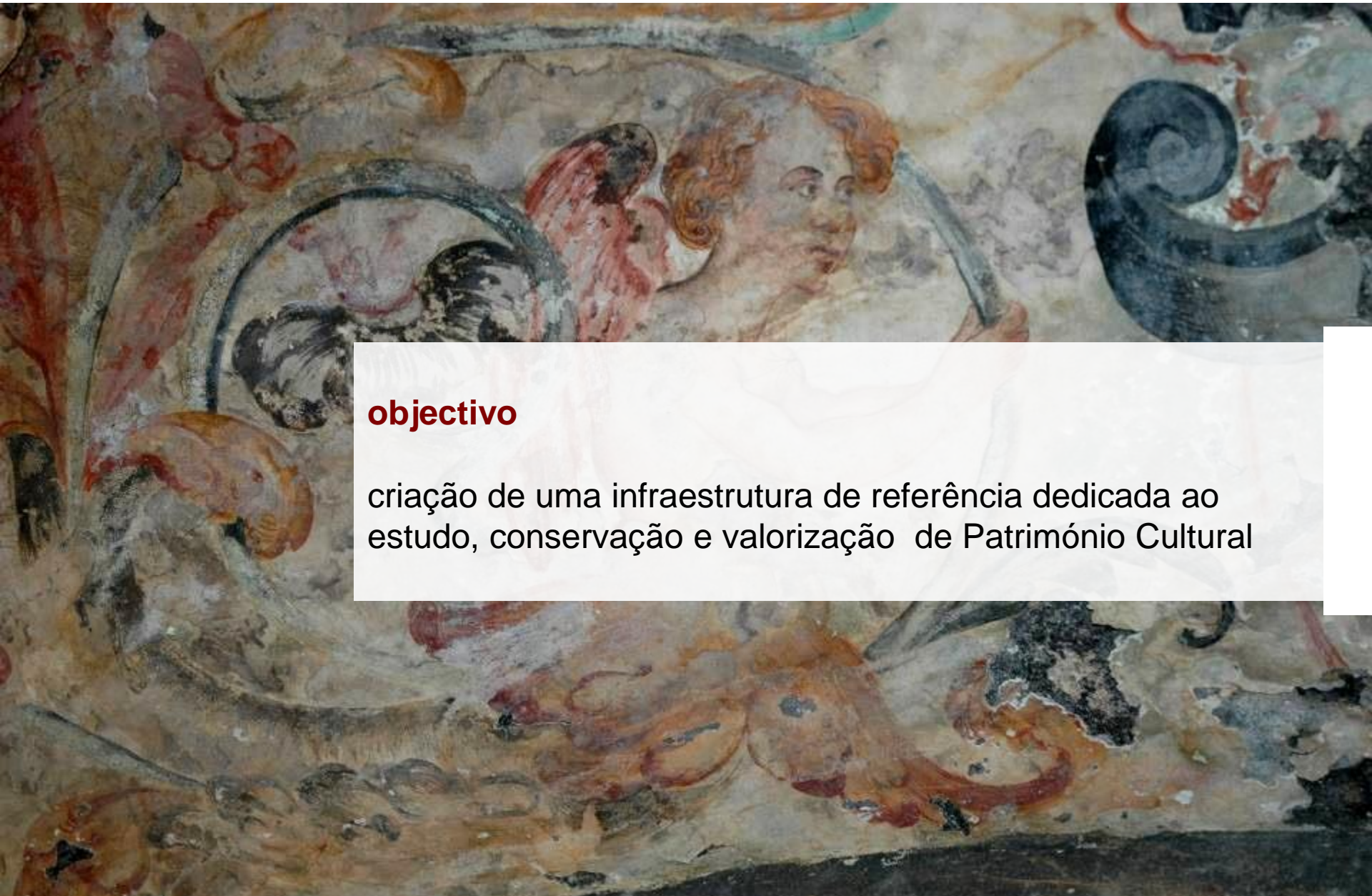
CULTURAL HERITAGE, STUDIES AND SAFEGUARD



A Universidade de Évora

Universidade Pública, localizada em Évora, é a instituição referência de Ensino Superior e Investigação na Região Alentejo

A Universidade investiu fortemente na última década na área das ciências do património incluindo arqueologia, museologia, história, gestão patrimonial e arqueometria, sendo actualmente uma das instituições lider neste campo.



objectivo

criação de uma infraestrutura de referência dedicada ao estudo, conservação e valorização de Património Cultural

Quem somos?



Quem somos?



equipa

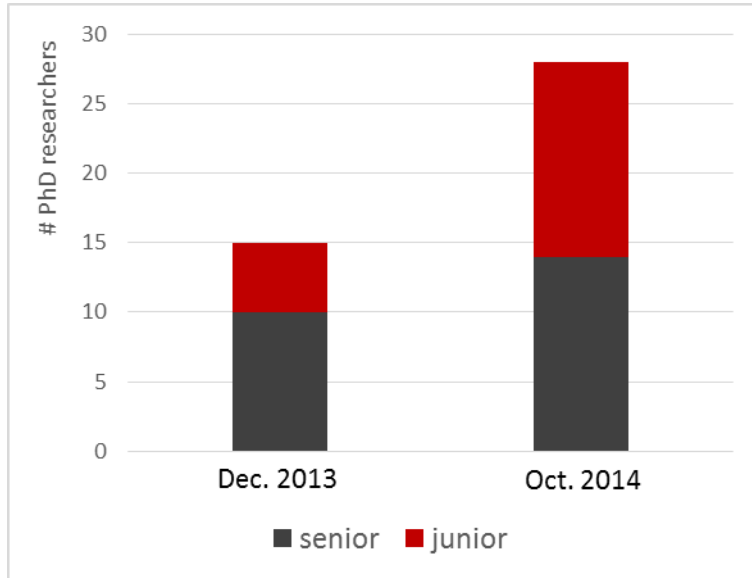


doutorados

- 12** químicos (4 bolsas Post-doc)
- 3** geólogos / geoquímicos
- 5** bioquímicos (3 Post-doc)
- 5** conservadores-restauradores (Post-docs)
- 1** arqueólogo (Post-doc)
- 2** ciências dos materiais (Post-doc)

licenciados / mestres

- 20** alunos de doutoramento (16 bolsas FCT)
- 10** alunos de mestrado (8 ERASMUS MUNDUS)
- 1** conservador-restaurador
- 1** designer gráfico
- 1** staff administrativo



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Infra-estruturas

- Lab. Microscopia e Microanálise
- Lab. Espectrometria de Massa
- Lab. Cromatografia
- Lab. Biodegradação e Biotecnologia
- Lab. Caraterização de Materiais
- Unidade móvel - *HERCULES mobile*
- oficina de CR (Museu de Evora)



Instrumentação analítica

Microscopy e microanalysis Lab

- VP-SEM-EDS HITACHI 3700N with X-ray spectrometer BRUKER Xflash 5010SDD
- Microspectrometer Raman HORIBA Xplora
- Imaging micro-FTIR BRUKER Hyperion
- Optical microscope LEICA DM2500M
- Optical microscope LEICA DM2500P
- Inverted optical microscope MOTIC
- Epifluorescence microscope MOTIC BA-410
- Stereozoom microscope LEICA M205C

Mass spectrometry Lab

- LA-ICP-MS Agilent 8800 TriQuad
- IR-MS Thermo

Chromatography Lab

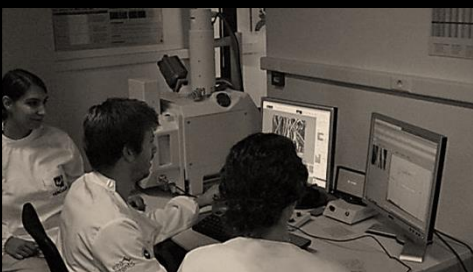
- LC-DAD-MS THERMO LCQ Fleet
- GC-MS SHIMADZU GCMS-QP2010 Plus
- Py-GC-MS SHIMADZU GCMS-QP2010Plus

Materials Characterization Lab

- TG-DTA NETZSCH STA 449F3 Jupiter
- X-ray Microdiffractometer BRUKER Discovery

Biodegradation and Biotechnology Lab

- DNA PCR Biorad
- electrophoresis system Biorad
- DNA image acquisition equipment Biorad
- Microorganism incubation systems VWR
- Cell analyser Millipore Muse
- UV/Vis microplate Thermo Multiscan Go



HERCULES mobile

- High resolution infrared reflectography OSIRIS with InGaAs detector
- digital radiography (pulse X-ray source SCANNA XR200 -150kV- and XRS3 -300kV- with digital scanner SCANNA CR35)
- photographic equipment (visible, UV and IR)
- handheld X-ray fluorescence spectrometer Bruker tracer IIID
- portable X-ray fluorescence spectrometry Amptek (Mini-X source and X-123SDD detector)
- handheld colorimeter/visble spectrometer Datacolor Mercury 3000
- handheld digital microscope dinolite
- FTIR spectrometer Bruker ALPHA (with reflection, transmission, and ATR module)
- laser scanner 3D (FARO) for architectonic structures
- laser scanner 3D (NextEngine) for artefacts



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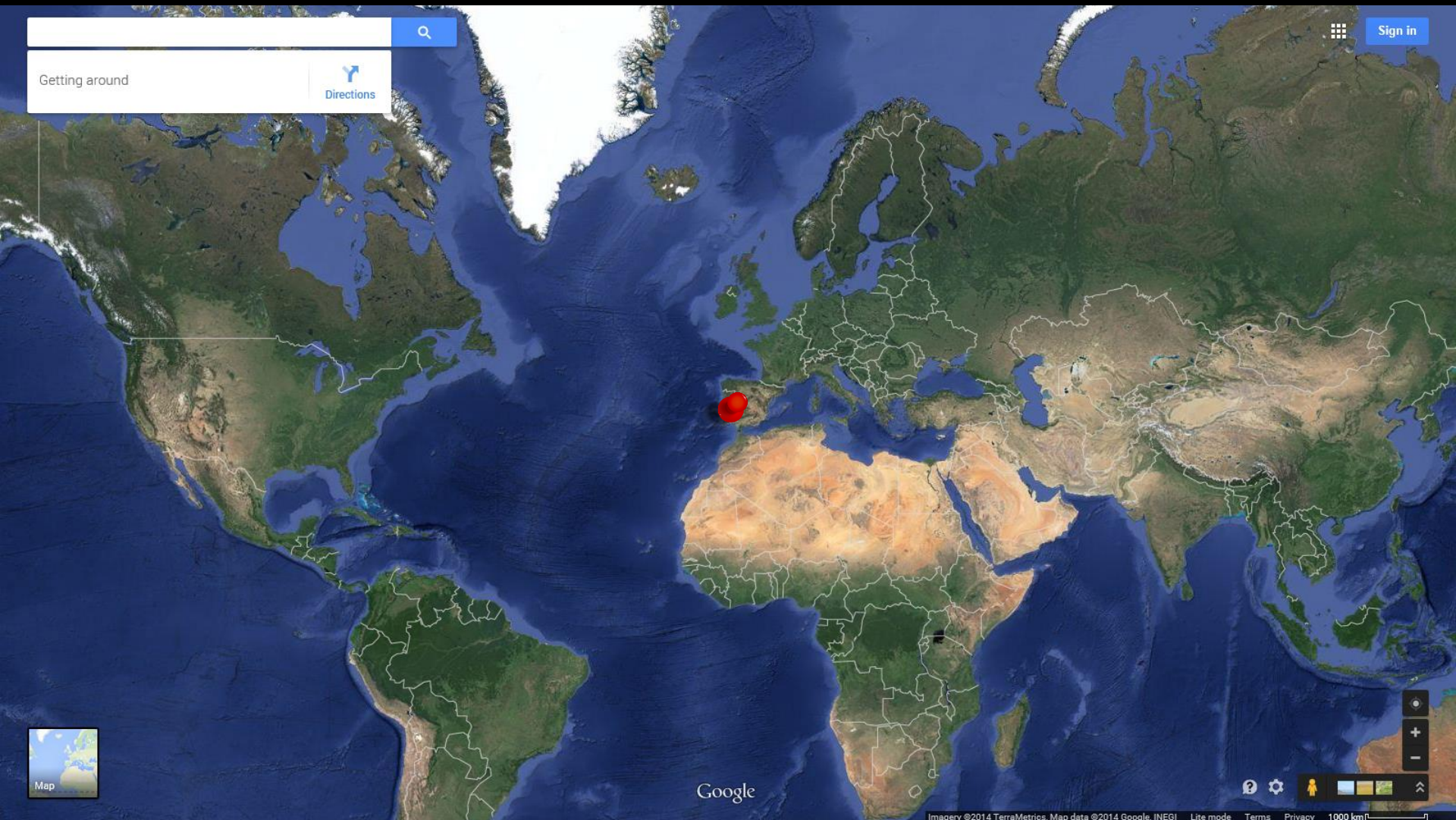


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Onde estamos?



No centro do Mundo, no epicentro da investigação em Património




infra-estruturas

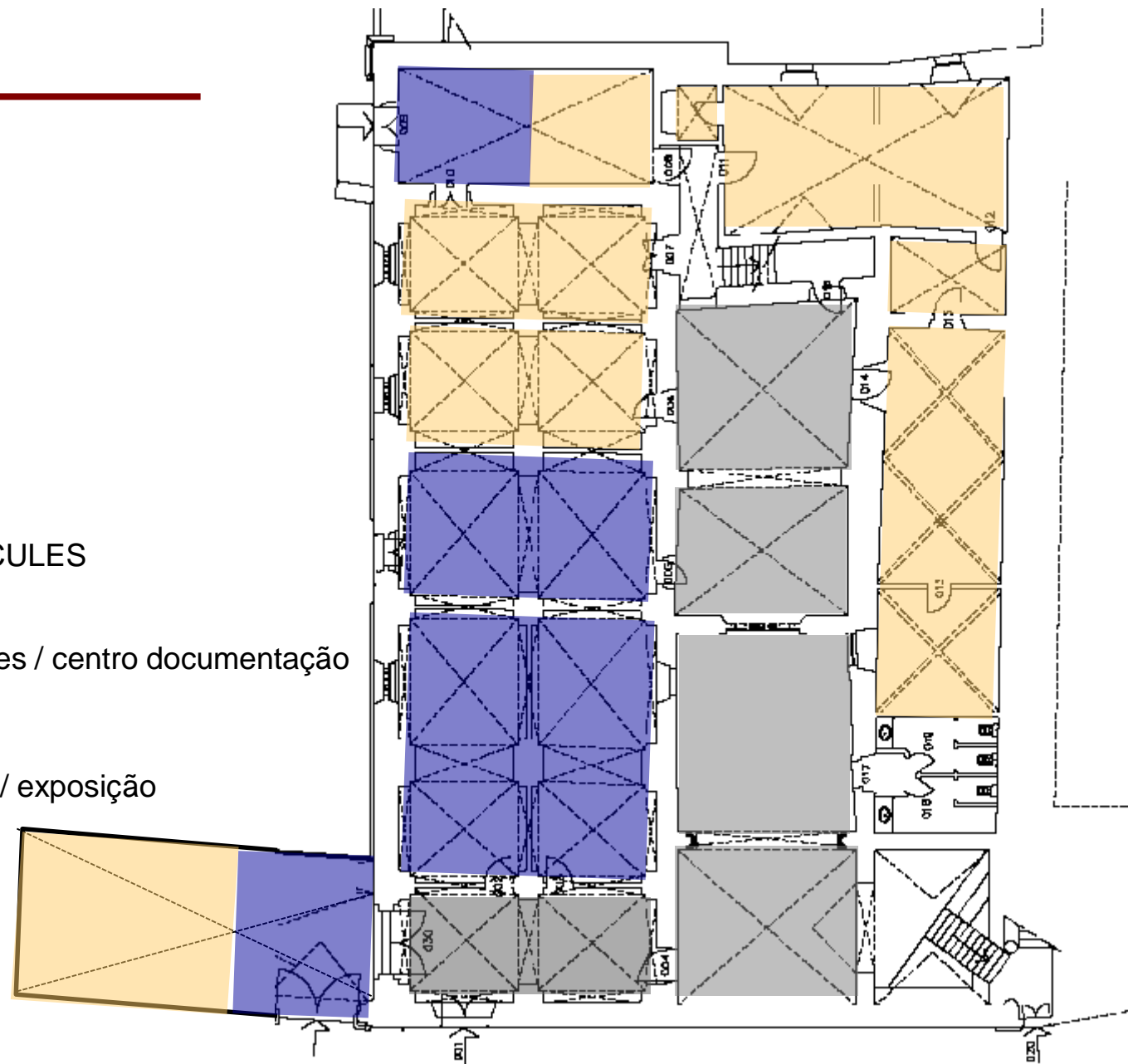


infra-estruturas



Palácio do Vimioso
Espaços Laboratório HERCULES

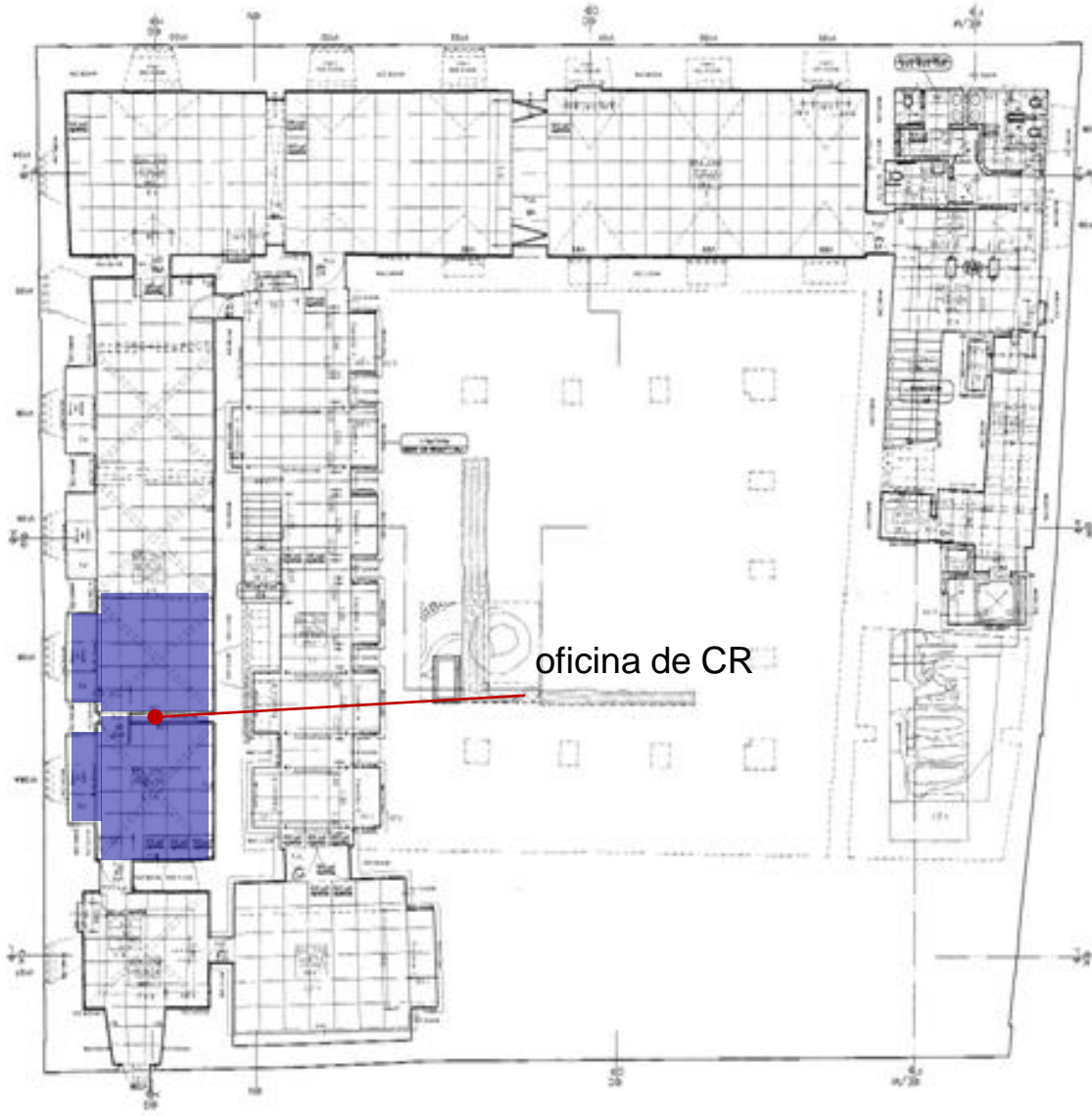
-  Gabinetes / sala reuniões / centro documentação
-  Espaços laboratoriais
-  Espaços de circulação / exposição



infra-estruturas

Museu de Évora

Oficina de CR



Financiamentos infraestrutura

- projecto *HERCULES* (EEA Grants) 922 k€
- projecto *HERCULES Mobile* (QREN / PORA) 283 k€
- projecto APOLLO (QREN / INALENTEJO) 1 M€
- projecto LARES (QREN / INALENTEJO) 1 M€
- projecto Micra.lab (QREN / SAECTN) 750 k€



How do we operate?



How do we operate?



Research Lines

1. Archaeometric approaches to past cultures
2. Sciences for the Arts
3. Science for Heritage Conservation
4. Novel materials and tools for Cultural Heritage

1. Archaeometric approaches to Past Cultures



Opportunity:

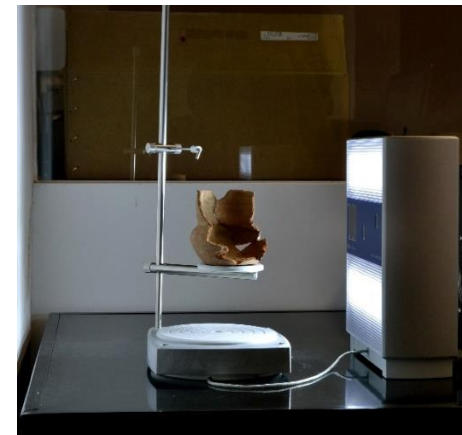
develop and integrate systematically novel archaeometric approaches to address several key archaeology issues, namely provenance, technologies of production and knowledge about socio-economic behaviors of past civilizations

Partners:

archaeologists, ethno-archaeologist,
historians, sociologists, architects

Stakeholders:

research centers, archaeology SME's,
public and private institutions
(including archeological fields, regional and local authorities)



2. Sciences for the Arts

Opportunity:

develop innovative collaborative and cooperative art and historic driven studies that integrate the material dimension to explore the artistic and traditional techniques and construction technologies

Partners:

art historians, historians, conservators, curators, museologists, architects

Stakeholders:

research centers, public and private institutions (including museums, regional and local authorities)



3. Science for Heritage Conservation

Opportunity:

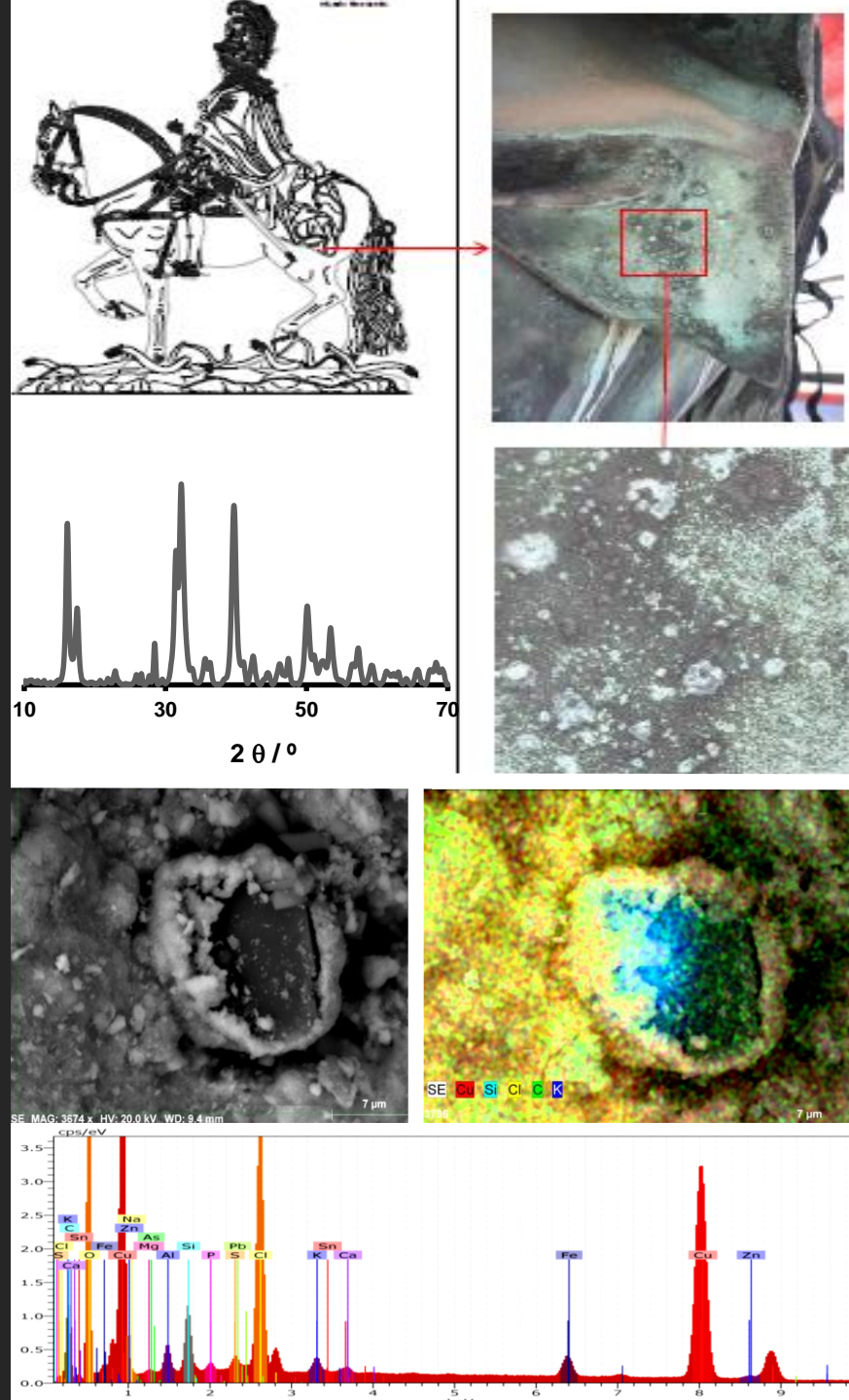
meet the real needs of cultural heritage conservation by developing applied research to understand the degradation mechanisms (including biodegradation and environmental agents), develop effective mitigation/treatment strategies and apply novel diagnosis and hyperspectral and spatial modeling technologies)

Partners:

conservators, curators, museologists, architects, civil engineers

Stakeholders:

research centers, conservation SME's, public and private institutions (including museums, regional and local authorities)



4. Novel materials and tools for Cultural Heritage

Opportunity:

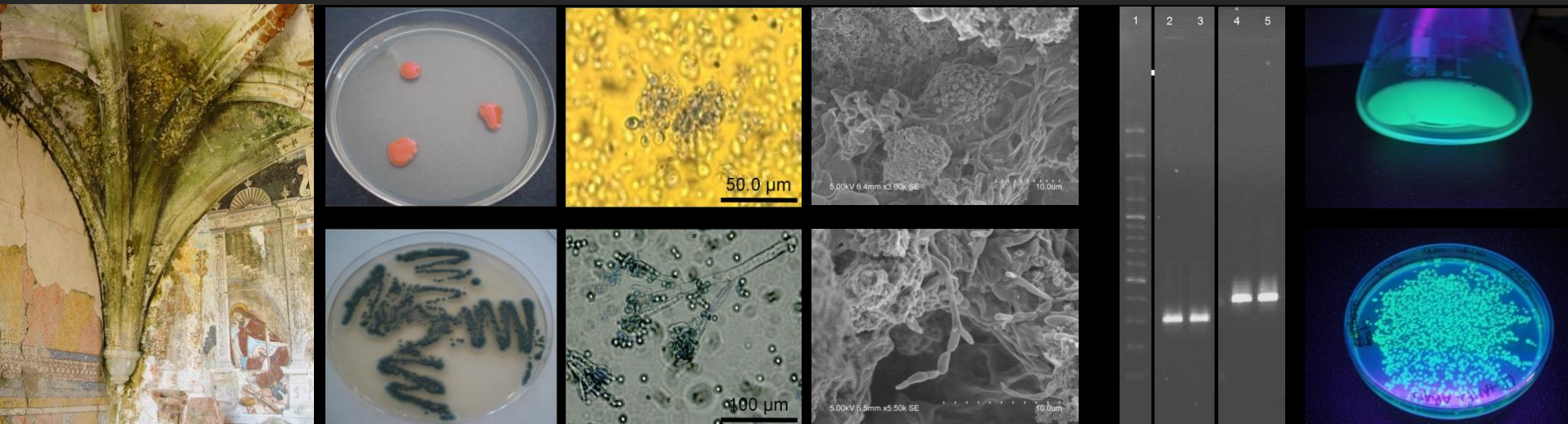
develop and create novel biotechnology based products (eg. biocides, probes for biological recognition) and novel materials for conservation (eg. nanolimes and colloid cleaning gels), develop novel analytical and diagnosis methodologies

Partners:

industry, conservators, civil engineers

Stakeholders:

paint and construction materials industry, bio-based industry, research centers



networking

- Coordination of the Joint Research Infrastructure:



internacionalização



Universidade Federal de Minas Gerais, Brasil
Universidade de Vitoria, Brasil
Universidade Federal de S. Paulo, Brasil
Universidade Estadual de Rio de Janeiro, Brasil

Metropolitan Museum of New York, USA
Getty Institute of Conservation, USA

National Gallery of London, UK

Universidad Complutense de Madrid, Espanha
Universidad Autonoma Madrid, Espanha
Universidad de Salamanca, Espanha
Universidad de Burgos, Espanha
Universidad de Oviedo, Espanha
Univesidad de Cadiz. Espanha

C2RMF, França
Universite de Avignon, França
Universite de Paris 7, França

Ghent University, Belgca

Biblioteca do Vaticano, Vaticano
Museu do Vaticano, Vaticano

Universidade de Sapienza, Rome, Italia
Universidade de Pisa, Italia
Universidade de Palermo, Italia
Universidade de Bologna, Italia

Academy of Fine Arts Vienna, Austria

University of Zurich, Suíça

University of Thessaloniki, Grécia

Iasi University, Roménia

Fez University, Marrocos

Oman National Museum, Sultanato de Oman

Ministério da Cultura, Angola



What is our strategy?





vision statement

- **produce**
Great Science
- **valorize and preserve**
Cultural Heritage
- **inspire and train**
Young Generations

1 strategic vision, 7 major points addressed:

- **Consolidation of HERCULES Lab staff and infrastructure**
- **Improve HERCULES Lab Scientific Production**
- **Increase knowledge Transfer yields**
- **Promotion of Advanced Training Courses**
- **Strengthen International recognition of HERCULES in ERA**
- **Reinforce HERCULES Outreach Activities and Social Role**
- **Create the scientific environment to become a**

reference Leading Research Institution





candeias@uevora.pt

