



Digital Workflows for Heritage Conservation

HERITAGE SURVEY AND SCIENTIFIC ANALYSIS OF THE WATCHTOWERS THAT DEFENDED THE LAST ISLAMIC KINGDOM IN THE IBERIAN PENINSULA (THIRTEENTH TO FIFTEENTH CENTURY)

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The Islamic Nasrid kingdom of Granada occupied the mountainous areas of the southeastern area of the Iberian Peninsula, topographically protected by the Baetic mountain range. There, a natural border was established between the Nasrid kingdom and the Christian kingdom of Castile that lasted more than 250 years, from 1232 to 1492. To control this frontier and establish visual communication between it and the Nasrid centre at the Alhambra citadel, an extensive network of watchtowers and defensive towers was constructed. Many of them are still standing, scattered among the provinces of Granada, Malaga, Almeria and the eastern parts of Jaen, Cordoba and Cadiz.



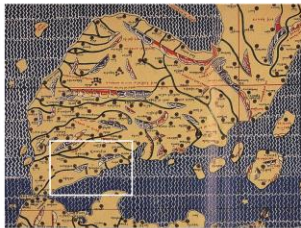
There exist studies of individual towers, but no comparative analysis has been undertaken of all of them from the perspective of the Nasrid kingdom of Granada itself. Graphic, homogenous and exhaustively planimetric documentation would bring together existing information on the majority of these examples and enable a deeper research. For this reason, this work conducts massive and systematic architectural surveys of all these military structures, using photogrammetry.



In addition to studying the construction typology and techniques, the structural capacity of these towers is being analyzed. It examines how they have been affected by human and natural destructive forces, especially earthquakes, so common in eastern Andalusia. Although all the military architecture is protected by the Spanish Heritage law, many of these medieval towers and their cultural landscapes are in severe risk.

Tower of Agicampe (Loja, Granada)

The towers are being studied as individual exemplars (emphasizing their differences) and as a unit in a typological group (looking for similarities and unifying characteristics). New technologies for Information and Communication are being used in order to disseminate the results among specialists and to make them available to the general public. Guidelines for restoration projects are also being formulated from the cases analyzed.



Al-Andalus: clima IV, section 1. Muhammad al-Idrisi, (Palermo, 1154), copy from the 13th c. Bibliothèque Nationale de France (Paris). The Iberian Peninsula. Interpretation of the map of al-Idrisi by Konrad Miller, Stuttgart (1928). Library of Congress (Washington)

Tower of Agicampe

Tower of El Alcázar

Tower of El Romeral

Tower of Alabi

Tower and walled enclosure of Lojuela (Murchas, Granada)



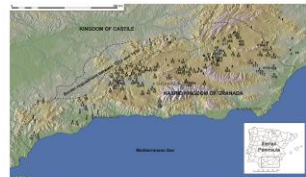
Tower of El Alcázar (Jerez del Marquesado, Granada)



Tower of El Romeral (Baza, Granada)



Tower of Alabi (Cúllar, Granada)



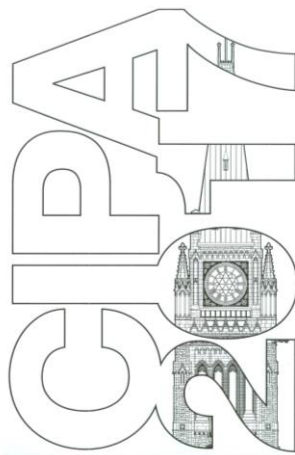
Best preserved Nasrid towers in southeastern Spain
<ul style="list-style-type: none"> Alcázar de Baza Alcázar de Guadix Alcázar de Granada Alcázar de Málaga Alcázar de Sevilla Alcázar de Córdoba Alcázar de Jaén Alcázar de Cádiz Alcázar de Huelva Alcázar de Badajoz Alcázar de Mérida Alcázar de Salamanca Alcázar de Valladolid Alcázar de Zamora Alcázar de León Alcázar de Asturias Alcázar de Cantabria Alcázar de Castilla y León Alcázar de Castilla-La Mancha Alcázar de Aragón Alcázar de Valencia Alcázar de Murcia Alcázar de Extremadura Alcázar de Galicia Alcázar de Asturias Alcázar de Cantabria Alcázar de Castilla y León Alcázar de Castilla-La Mancha Alcázar de Aragón Alcázar de Valencia Alcázar de Murcia Alcázar de Extremadura Alcázar de Galicia

Best preserved Nasrid towers in southeastern Spain

Tower and walled enclosure of Lojuela (Murchas, Granada)



Luis José García-Pulido, Jonathan Ruiz Jaramillo y M^a. Isabel Alba Dorado. "Heritage Survey and Scientific Analysis of the Watchtowers that Defended the Last Islamic Kingdom in the Iberian Peninsula (Thirteenth to Fifteenth Century)". This contribution has been peer-reviewed and received the "Best Poster Award for a very significant contribution to Digital Workflows for Heritage Conservation" at the 26th International CIPA Symposium 2017, 28 August–01 September 2017, Ottawa, Canada.



Best Poster Award

to

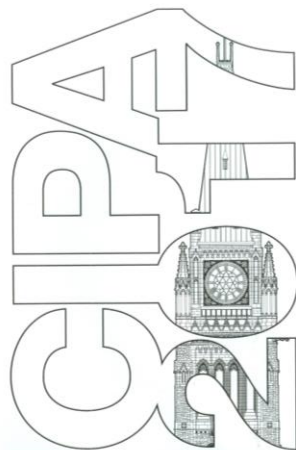
**Luis José
García-Pulido**

For a very significant contribution to Digital
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KINGDOM IN THE IBERIAN PENINSULA (THIRTEENTH TO
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Prof. Mario Santana Quintero
On behalf of CIPA 2017 Organizing Committee

Prof. Andreas Georgopoulos
CIPA President



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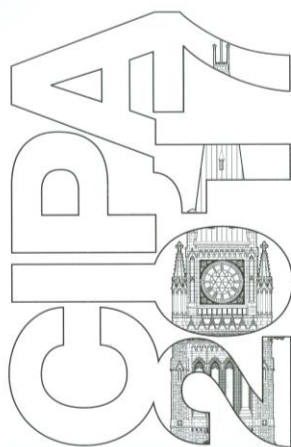
**Jonathan
Ruiz Jaramillo**

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**María Isabel
Alba Dorado**

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