Numerical characterization of complex materials and vibro-acoustic systems

Tribunal:

Presidente: Jaime Ramis Soriano, Universidad de Alicante.

Secretaria: María del Pilar Salgado Rodríguez, Universidade de Santiago de Compostela.

Vocal: Luis Godinho, Universidade de Coimbra, Portugal.

Abstract:

The acoustic characterization of materials plays an important role in a wide range of industrial applications. To get a proper acoustic characterization of a material, the knowledge of its intrinsic parameters is fundamental. However, this task is becoming increasingly difficult due to the continuous development of new materials. A classical parametric approach can be used to perform the acoustic characterization of a material. Once a model and its constitutive law are chosen, their unknown parameters are estimated by fitting the experimental data with the mechanical response of the model. The main drawback of this methodology is that the wrong choice of the parametric model can lead to get a response far from the experimental data.

The main purpose of this dissertation is to present a non-parametric methodology to characterize acoustically different materials. This data-driven methodology allows to avoid the epistemic uncertainty of an unsuitable model selection since the mathematical modelling of the materials is based only on the available experimental measurements. The proposed methodology requires the numerical solution of an inverse problem at each frequency of interest. To illustrate the efficiency of the methodology, numerical simulations are performed by using real-world measurements of porous, viscoelastic, and poroelastic materials.

Autora:
Laura del Río Martín
Directores:
Andrés Prieto Aneiros

Exposición:
22 de julio de 2020

Lugar:
Facultad de Informática.
Universidade da Coruña

e-mail:
laura.rmartin@udc.es

TA120
SENSOR DE RUIDO

CESVA

50

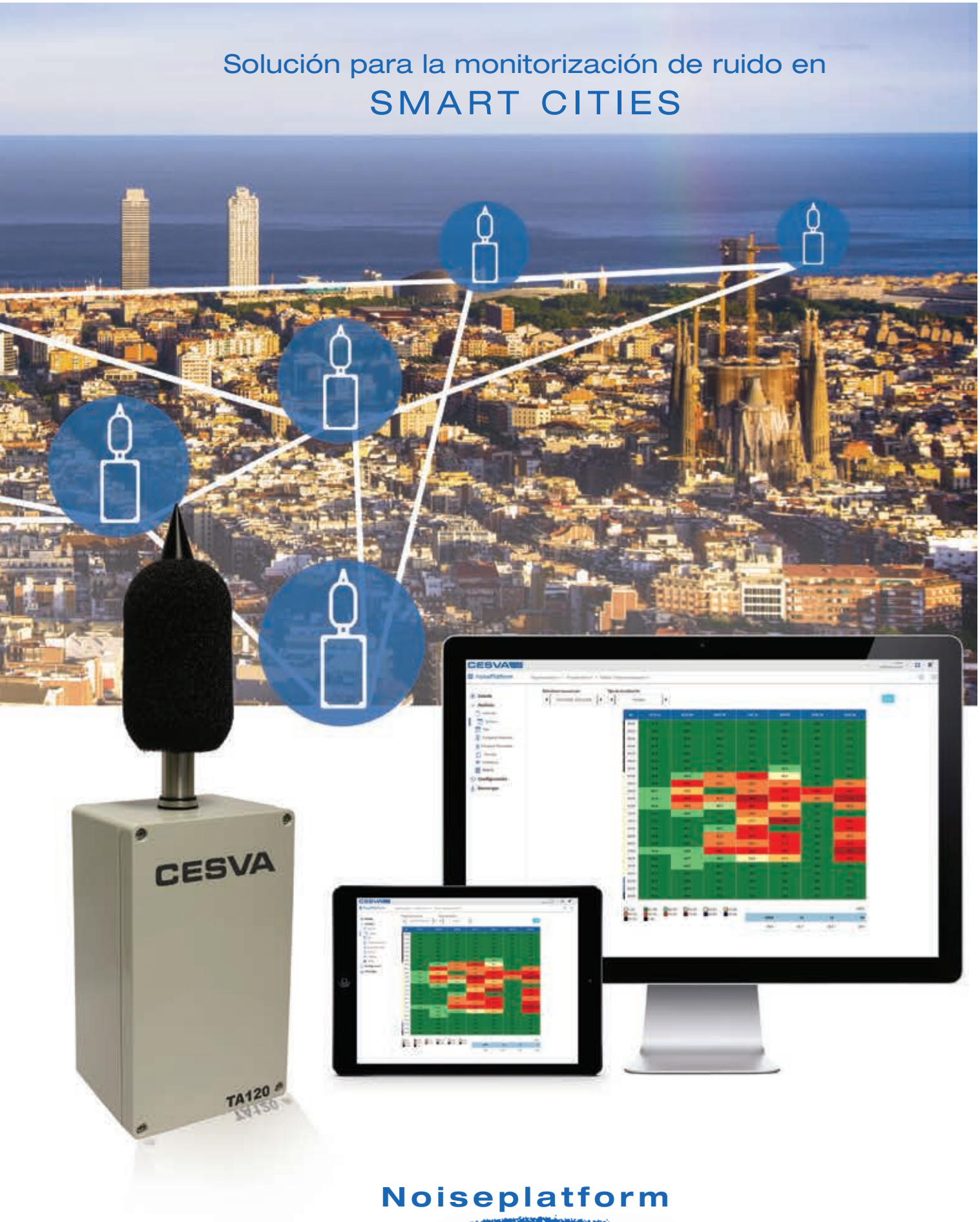
1969 - 2019

MUCHAS GRACIAS A TODOS
NUESTROS CLIENTES Y COLABORADORES
POR ESTOS 50 AÑOS

www.cesva.com

Solución para la monitorización de ruido en

SMART CITIES



Noiseplatform

Plataforma online de monitorización de ruido

www.noiseplatform.com