

## PROMINENT project main research areas:

Continuum damage mechanics with the special interest in phase-field damage modeling;  
Experimental investigation of concrete and metals responses and the material parameters identification;  
Specialized FEM software development life cycle.



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### Prominent Project

Center for Engineering Software & Dynamic Testing

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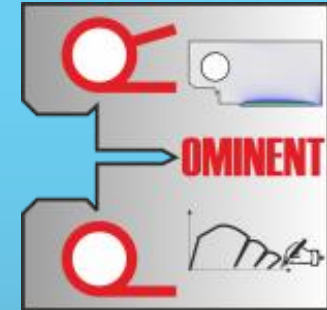
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# PROMINENT

## PRediction Of daMAGE evolution IN ENgineering sStructures



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## Project info

The PROMINENT team will develop a new Phase-Field damage Modeling (PFM) software tool, PAK-DAM, specialized for predicting damage evolution in engineering structures, including contact and coupled problems loading and boundary conditions.

Developed software tool will be essential for the safety, design reviews, integrity, reliability assessment, and health monitoring of infrastructural objects such as dams, bridges, buildings, water towers, and engineering structures in automotive, aircraft, airspace, ships, biomedical, and electric power industries.

## Objectives

To develop and improve 6 algorithms necessary for implementation of PFM for metals (brittle and ductile) and for concrete;  
To identify material parameters and fracture toughness of the concrete and metal by experimental testing;  
To develop PAK-DAM software tool for the damage assessment using FEM.

To verify the developed PAK-DAM tool and to apply it to engineering structure case studies.

To increase the visibility of the PAK-DAM software tool and the project team excellence.

## Expected results

Theory manual for PAK-DAM software tool;

The project will develop the experimental techniques and the partners' institution research potential in experimental investigation;

PAK-DAM software tool in executable format and source code in FORTRAN language;

User manual for PAK-DAM software tool;

Example manual for PAK-DAM software tool.

