

## **Nonlocal analysis with microcrack interactions - testing the results**

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### **SUMMARY**

The new nonlocal approach is not a poor mathematical device which prevents the localization of damage into a zero volume. It has a physical meaning of microcrack interactions and, in contrast to the previous nonlocal strain approach, the new nonlocal approach can be used with any continuous material model since the material properties are treated on the local level. It is demonstrated that the nonlocal material model parameters may be approximately identified by usual concrete fracture properties such as tensile strength, concrete fracture energy and maximum aggregate size. To check whether such an approach can correctly predict failure the results of the analysis for different problems have been carried out and compared with the available experimental evidence. It is shown that if a realistic continuum fracture material model is adopted the results of the analysis are mesh insensitive and the approach is able to localize damage due to fracture into a volume whose size and shape are dependent on the macroscopical concrete properties and current stress strain state.

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