Numerical and Experimental Analysis of Rotor Dynamic Stability

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Abstract : The study of the rotor dynamic in transient system allowed to determine the vibratory responses due to various excitations. This work presents a coupled gyroscopic effect in the defects of a rotor under dynamic loading. Calculations of different energies and virtual work from the various elements of the rotor are developed. To treat real systems a model of finite element was developed. This model of the rotor makes it possible to extract the frequencies and modal deformed, and to calculate the stresses in the critical zone. The study of the rotor in transient system allowed to determine the vibratory responses due to the unbalances, crack and various excitations.