

Method for magnetic resonance processing of parts with real-time adaptive control involves placing the workpiece in a constant, uniform magnetic field and mechanically exciting the workpiece with multi-frequency oscillations in the form of a broadband frequency spectrum of equal amplitudes. Additionally, the workpiece vibrational response is recorded, and a spectral analysis of the recorded vibrational response is performed in real time without interrupting the processing, based on the results of which the workpiece resonant frequencies are automatically determined. An automatic transition is performed from broadband excitation to harmonic mechanical excitation at the detected resonance frequencies. Spectral analysis of the vibration response is periodically repeated to adaptively adjust the excitation mode during the machining process.