In article number 1903051, Matthieu Rüegg, Juergen Brugger, and co-workers design, fabricate, and characterize biodegradable magnesium microresonators using an innovative microfabrication process based on ion beam etching. Under a radio-frequency magnetic field, an electrical current is induced and heats up the frequency-matched resonator, which modifies its surrounding environment. Such resonators are promising candidates to be used as power receivers and frequency-selective microheaters for biodegradable implantable medical devices.