Abstracts

Multiparameter microwave sensors for determining composition or condition of substances

F. Daschner, M. Kent, R. Knochel and U.-K. Berger. "Multiparameter microwave sensors for determining composition or condition of substances." 2000 MTT-S International Microwave Symposium Digest 00.3 (2000 Vol. III [MWSYM]): 1567-1570.

A multiparameter microwave sensor is introduced that is capable of monitoring the percentage of constituents in composite dielectrics like foodstuffs. Results are demonstrated for so called artificial meat and for fish. The method applies principal component analysis (PCA) and principal component regression (PCR), both known from other disciplines like chemometrics. A prototype instrument operating in the frequency domain is presented showing excellent results. Also time domain measurements are suggested, which prove for the first time the applicability of the PCA and PCR signal processing scheme on short pulses with ps- and ns-risetimes.

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