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## A method of detecting trace elements in biological samples

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This paper presents a method of detecting trace elements in biological samples. This is based on the classical theory known as "Electron Spin Resonance (ESR)", also known as "Bosons". According to this theory, when an atomic particle is irradiated by means of an electromagnetic wave, the atom absorbs electromagnetic energy at a frequency determined by the atomic number. This gives rise to Electron Spin Resonance (ESR). This phenomenon is used to examine RF absorption in biological samples. It is shown that an unknown sample, placed between the transmit antenna and the receive antenna, separated by a distance less than the Fresnel Zone break point, absorbs electromagnetic energy at a frequency determined by the atomic weight of the unknown sample. The Fresnel Zone break point is used to position the antennas in order to avoid multipath signals. Experimental data will be presented to illustrate the concept.

### Biography

Saleh Faruque received MSc and PhD degrees in Electrical Engineering from University of Waterloo, Ontario, Canada. He worked for telecom industries for more than 20 years in various capacities and contributed extensively in Cellular Communications and related areas. At present, he is an Associate Professor, Department of Electrical Engineering, University of North Dakota, Grand Forks, North Dakota, USA. In 2011-12 he was the recipient of the prestigious US Fulbright scholarship to Bangladesh. In addition, the College of Engineering and Mines, UND, awarded him the outstanding professor of the year 2007-08 as well as in 2011-12.

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