This definition corresponds to the deviations obtained directly in the static model, and indirectly in the dynamic model, by the effect of firing angles on the direct currect wave amplitudes.

REFERENCE:

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ACCURACY OF A NUCLEAR GYROSCOPE

G. Erez, Y. Boneh and M. Friedman

In this work a nuclear gyroscope, based on two isotopes having nuclear spins which are oriented in space, was proposed. A nuclear spin in a magnetic field B obeys Bloch's equations which, in a co-ordinate system fixed to a rotating vehicle with a frequency Ω, result in:

$$\omega_1 = \gamma_1 B - \Omega$$
$$\omega_2 = \gamma_2 B - \Omega$$

where γ_1, γ_2 are the precession frequencies and γ_1, γ_2 are the gyro-magnetic ratios. Measuring ω_1 and ω_2 permits the calculation of Ω (and B) based on the known values of the two physical constants γ_1 and γ_2.

The possibility of obtaining the three components of the angular velocity Ω of a rotating system using few gyroscopes was investigated with emphasis on the accuracy that might be achieved by utilizing the proposed nuclear gyroscope. The present work, based on an analytical approach, shows that these components can be obtained to a good accuracy ($\sim 0.01^\circ$/h) needed for fixing the orientation in space of the rotating system, e.g. an airplane. These conclusions should be further supported by a continuation of this work where the equations of motion of the gyroscope are to be solved numerically on a computer.

ULTRASOUND INSPECTION OF COMPOSITE MATERIALS

R. Zilber and G. Sivan

The present work deals with the ultrasonic inspection of a wound composite material. A specimen was prepared in order to test