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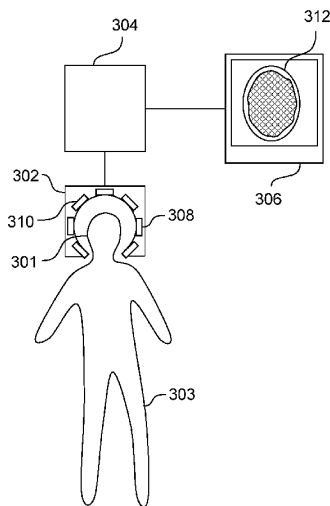


Figure 3

(57) Abstract: A biological imaging system for determining a spatial distribution of one or more physical properties within a biological structure is provided, comprising a data input arranged to receive a plurality of measurements relating to one or more physical fields and a processing device arranged to determine a spatial distribution of one or more physical properties within the biological structure using said plurality of measurements. The processing device forms a discretized full order model of the biological structure, uses this model to describe a baseline spatial distribution of the biological structure and determines optimised values for the coefficients describing the baseline spatial distribution based on the plurality of measurements. The processing device also forms a hybrid model comprising the baseline spatial distribution coefficients and a set of deviation full order model coefficients which describe a deviation from the baseline spatial distribution, determines optimised values for the baseline spatial distribution coefficients and the deviation full order model coefficients of the hybrid model and determines the spatial distribution of one or more physical properties within the biological structure using optimised values of the coefficients.