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Abstrak

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The results of a computer simulation investigation delineating the limits of resolution, sensitivity, and accuracy of the depth-resolved surface-coil spectroscopy (DRESS), volume-selective excitation (VSE), and image-selected in vivo spectroscopy (ISIS) methods for achieving spatially localized NMR spectroscopy are presented. A computer program, which numerically solves the Bloch equations for variable input parameters, is used to simulate the spatial localization afforded by each technique. Because the numerical solution of the Bloch equations describes the behavior of the bulk magnetization with great precision, the simulations provide an obejective and realistic means of evaluating the performance of the individual localization schemes and reveal nuances and limitations not discussed in the original experimental papers. The results of this computer simulation study should encourage the optimization of localization methodology for use in specific applications.