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A 129 GHz dynamic nuclear polarizer in a wide-bore superconducting magnet[1] LLOYD LUMATA, RICHARD MARTIN, ASHISH JINDAL, CRAIG MALLOY, A. DEAN SHERRY, UT Southwestern Medical Center, MARK S. CONRADI, Washington University in St. Louis, MATTHEW MERRITT, UT Southwestern Medical Center — Dynamic nuclear polarization via fast dissolution method has allowed production of solutions containing highly-polarized nuclei (>10,000-fold enhancement of the room-temperature liquid-state NMR signal) of bio-molecules for *in vitro* and *in vivo* metabolic nuclear magnetic resonance spectroscopy (MRS) and imaging (MRI). Here we present the construction and use of a 129 GHz dynamic nuclear polarizer in a 4.6 T wide-bore superconducting magnet. The relatively large bore (150 mm) of the superconducting magnet allows the use of a cryostat separate from the magnet and routing of the microwaves such that the waveguide does not have to be removed before dissolution. A 100 mW microwave source operating at 129 GHz was used to irradiate the samples. The cryostat has a 10-liter liquid Helium capacity which lasts for 10-12 hrs of continuous operation. Base temperature of 1.15 K is achieved with a 450 m^3/hr roots blower pump. Preliminary results will be discussed.

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Lloyd Lumata
UT Southwestern Medical Center

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