

Supporting Information for: A 140 GHz Pulsed EPR/212 MHz NMR Spectrometer for DNP
Studies

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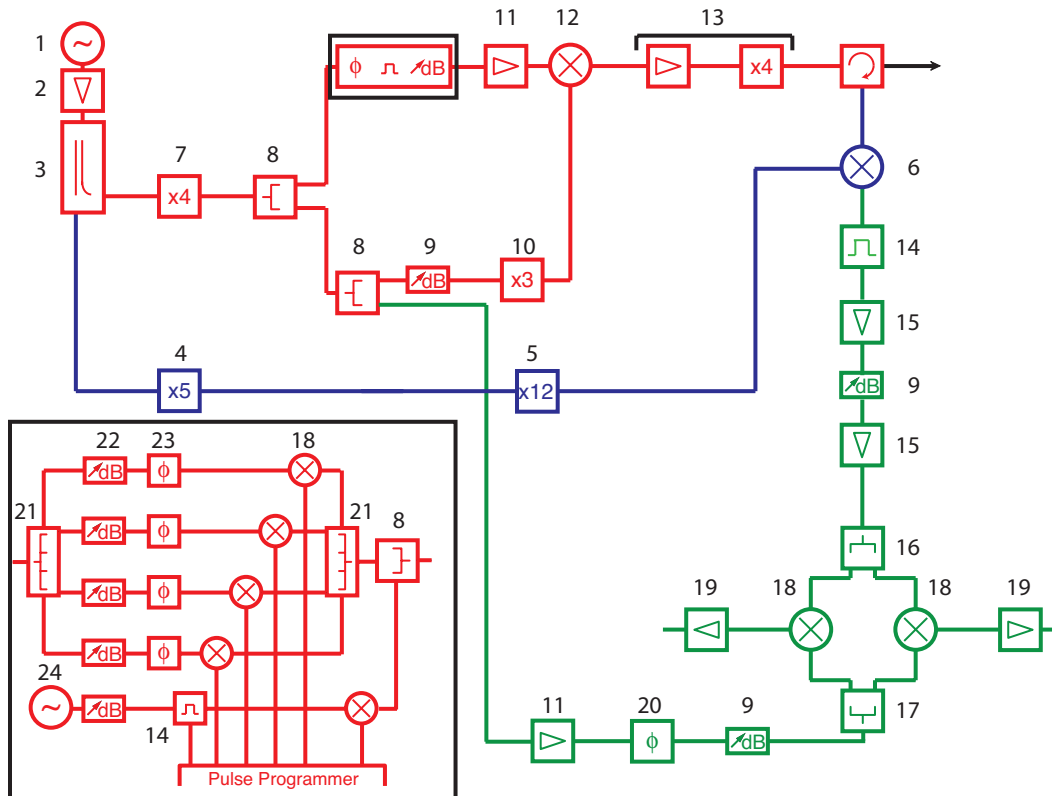
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TITLE RUNNING HEAD: 140 GHz EPR/DNP

Table 1: Microwave Components for 140 GHz Pulsed EPR Bridge



Component	Manufacturer	Part number
1	Princeton Microwave	PmT-G3220-2.1875
2	Mini-Circuits	ZX60-3011+
3	MITEQ	CD-202-402-10S-R
4	MITEQ	MAX5H105115
5	Millitech	AMC-08-RNH00
6	Millitech	MXB-08
7	Marki Microwave	AQA-1933
8	Mini-Circuits	ZX10-2-98-S(+)
9	Arra	G6684-30
10	MITEQ	SYS3X2327
11	Mini-Circuits	ZVA-183-S+
12	MITEQ	M2640W1
13	Virginia Diodes Inc.	Spacek A369-3XWB-24 (35 GHz amplifier) D70 (x2 multiplier to 70 GHz) D142 (x2 multiplier to 140 GHz)
14	American Microwave Corp.	SW-2184-1A
15	MITEQ	AMF-4F-08001200-15-10P
16	ATM Microwave	P216
17	Anaren	1H0568-3
18	Marki Microwave	M1-0412LA
19	DMP	DMP200
20	Arra	9426A
21	ATM Microwave	P416

22	ATM Microwave	AV066-30
23	ATM Microwave	P1306
24	Princeton Microwave	PmT-VCO-0810-8.0

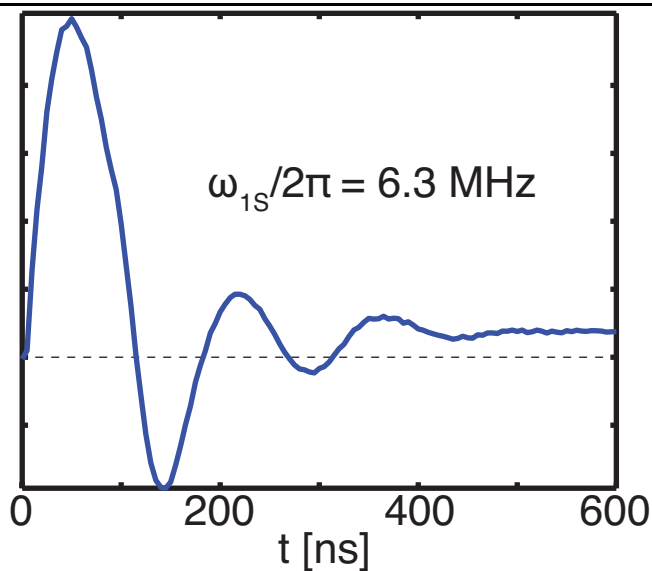


Figure 1: Electron Nutation Experiment

The microwave field strength is measured in a sample of 40 mM trityl dissolved in 60:40 ^{13}C -glycerol: D_2O at 80 K. A pulse of variable length was followed by a 500 ns delay, and 85 ns $\pi/2$ pulse. The figure plots the length of the initial pulse against the integrated intensity of the resulting echo, demonstrating a nutation frequency of 6.3 MHz for the spin-1/2 trityl radical. Note that nutation frequencies will be higher for high-spin paramagnets.