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Properties of Nano-particles for Bio Application with SQUID

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We have investigated properties of different kind of nano-particles such as Cobalt and Fe₃O₄. Some of those were applied for DNA detection. This system is based on a hybridization process. Two strands in a DNA molecule are held together by hydrogen bonds between base pairs like a ladder. The two strands are referred to as being complementary each other. HPV B 33 (Human Papillomavirus Probes 33) was prepared as a DNA. One strand (Sample DNA) was labeled with Fe₃O₄ ultra-small magnetic particles and the other (probe DNA) was anchored on a glass slide. Then they were hybridized each other on the slide. After washing the excess sample DNA, the hybridized DNA was evaluated in the presence of excitation ac field by high Tc SQUID. The signal was initially proportional to the concentration of the sample DNA and then saturated. It means that the hybridization occurred successfully between the sample DNA and the probe DNA. Also advanced results will be presented.

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