

Budget Justification

This proposed budget is for 36 months. Salary for all named personnel was calculated based on the actual budgeted Texas A&M University (TAMU) salary. Fringe benefits have been calculated according to standard rates. A 3% salary escalation per year has been included.

1 Senior Personnel

Principal Investigator, Aleksei Zheltikov, Ph.D., (Rate of pay \$7229 per month, effort 0.10 calendar month) will be responsible for overall coordination, including experiments, data analysis and interpretations, manuscript production, conference presentations, and reports as required.

2 Other Personnel

Postdoctoral Research Assistant, Sean Blakley, Ph.D.: (Rate of pay \$3500 per month, effort 9 calendar months) will work under the direction of Dr. Aleksei Zheltikov, will function as project manager, will participate in all stages of experimental work, theoretical analysis including analytical calculations, data analysis, and manuscript preparation. This postdoctoral researcher will also mentor graduate research assistants and present results of this research at scientific meetings.

Graduate Research Assistant, to be named, B.S: (Rate of pay \$1875 per month, effort 6 calendar months) will work under the supervision of Dr. Sean Blakley and under the direction of Dr. Aleksei Zheltikov, will function as researcher on all work projects, will participate in all stages of experimental work, theoretical analysis including analytical calculations, data analysis, and manuscript preparation. This graduate research assistant will present results at scientific meetings.

3 Capital Equipment

Capital equipment expenditures will include: a lock-in amplifier (Cost: \$9,000) necessary to upgrade existing lock-in detection measurements for enhanced signal to noise ratio in all measurement regimes, a visible wavelength spectrometer (Cost: \$2,000) necessary to characterize relative changes in fluorescent output of both NV and NV⁰ centers under study, a low-noise current pre-amplifier for amplification of photocurrent signals (Cost \$2,500), and a mechanical mount for the cryogenic confocal microscope (Cost: \$4,000) necessary to mechanically stabilize the cryogenic confocal microscope.

4 Other Direct Costs

Materials and Supplies will include: optical components, translation stages, safety equipment, electronic test equipment, vacuum equipment and accessories, and optomechanical hardware necessary for the experimental setup, as well as computer peripheral hardware (Cost: \$10,000).

5 Indirect Costs

Indirect costs are calculated at the Texas A&M University, Department of Health and Human Services (DHHS) negotiated rate of 48.5% of MTDC.