Title: **Photocathode materials able to sustain high currents**

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We will present preliminary work on photocathode materials able to sustain high currents, pertinent to the technology of accelerators and associated systems and essential to develop strategies and technologies for next generation nuclear physics accelerator capabilities. To this end, metallic photocathodes offer several clear advantages over semiconductor photocathodes because they are robust against degradation due to surface contamination and against damage resulting from conditioning or heating and can withstand high electric surface fields present at the cathode in RF accelerators. Other advantages include their very short response time (less than picoseconds) and their very long lifetime (years or longer), which is much longer than of other types of photocathodes (hours to months). However, the main problem with metallic photocathodes is the rather low quantum efficiency (QE), even for UV radiation. A possibility to improve the QE of metallic photocathodes is to exploit surface Plasmon resonance using adequate geometries for the intended application, as well as possible cap layers able to lower the metal work function. In this way, metal photocathodes designed to support surface Plasmons could produce high electron yields by enhancing their QE. We will show design criteria for such platform for this application as well as our preliminary results.