**CNM Ingenuity Funds via State of New Mexico Technology Enhancement Fund (TEF)**

**Assumptions**

* $2M total (approximately $1.2M in the first two years and $0.8M for the latter three years)
* 100% of the TEF money needs to be spent with NM institutions or within NM.
* No indirect can be charged on any funds.

**Purpose**

The TEF funds will be used for two complementary purposes:

* Expand the capacity of Quantum Learning Lab (QuLL) and Quantum Technician Bootcamp from 6 to 12 students
* Drive quantum workforce training by expanding the access of 2-year and 4-year students across New Mexico to Quantum Information Science concepts and curriculum.

**Activities**

* Expand Quantum Learning capacity from 6 to 12 students:
  + Third high vacuum training system **($90k)**
  + Third and fourth Rb-MOT neutral atom systems **($200k)**
  + Third and fourth optical experimental setups **($146k)**
  + Supplies and materials **($20k in years 1-5)**
* Develop Quantum Optics lessons, via subaward to UNM **($187k over 5 years)**
  + Funding for Undergraduate Research student under direction of Professor Marek Osinski.
  + Year 1 - Develop lessons on ThorLabs Quantum Optics Education Kits and recently released add-ons.
  + Years 2 – 5 will be determined by CNM Ingenuity as QuLL curriculum is further developed.
* Hold annual workshops (semi-annually in the first 2 years) to facilitate educator-to-educator and industry-to-educator knowledge transfer. **($50k in years 1-5)**
  + Invite educators from EQ-region community college and 4-year institutions. Workshop costs fully covered with TEF funds. Travel for educators from NM higher education institutions covered **($30k in years 1-5)**
  + Sharing of existing educational activities with a QIS focus, including lessons learned.
  + Industry leaders conduct panel sessions and/or seminars to present status/trends of QIS to educators.
* Establish a Workforce Training website that can serve as a one-stop location that lists workforce training programs, reference materials, internship/research opportunities, and resources for educators. **($30k years 1-2, $10k years 3-5 for upkeep)**
* Work with educators at community colleges to assistant them in developing QIS modules for existing courses and engaging broader audiences of students. Target audiences include introductory math sequence, physic I/II/III, chemistry, and computer science / computer information science. These educators would also be part of an ongoing community that would meet bi-monthly for support while implementing curriculum in the classroom. Stipend provided to NM educators **($50k in years 1 & 2)**
* Provide funding for turn-key experimental apparatus to supplement the QIS modules developed to expand participation in QIS. Coordinate the movement of these modules between higher education institutions, as necessary.  **($100k each for year 1 and 2)**
* Provide partial funding for CNMI Quantum Program Manager (33%) **($40k annually)**

The above activities will be driven by a CNM Quantum Project Manager (33% of their time will be dedicated to this). This individual will run the logistics of the annual workshop, coordinate the bi-monthly support sessions, maintain the website, coordinate activities between educators developing the QIS modules, maintain a central repository of QIS module materials, and manage the loan of experimental equipment between institutions.