Summary: Tri Alpha Energy, based in Irvine, California, is a growing company of approximately 100 employees working in the area of plasma fusion energy research and is operating the world’s largest Field Reversed Configuration (FRC) installation {Ref.: PHYSICAL REVIEW LETTERS 105(4), 045003 (2010); PHYSICS OF PLASMAS 18, 056110 (2011)}. This is an exciting opportunity to assist in construction and operation of a facility with unique physics, mechanical, high vacuum and high power requirements. Tri Alpha Energy has built an experienced team of physicists, engineers, and other specialists. We are now accepting applications for several positions from qualified candidates. These openings include efforts ranging from coordination of multiple diverse personnel and components to individual hands-on operation and problem solving.

Contact:
Please forward your resume to hr@trialphaenergy.com. Tri Alpha Representatives will be on site at the 2011 ICOPS/SOFE conference for interviews.

Openings:

Plasma Diagnostic Physicist

Job Description

The successful candidate will be involved in designing, constructing, operating, and maintaining several optical diagnostics for the current FRC experimental device, including a multi-point Thomson Scattering system. These optical tools are part of many other diagnostics that have been successfully deployed. He or she will interact with in-house physicists and engineers as well as with potential outside consultants. The selected candidate will be expected to have demonstrated expertise in one or more optical diagnostic techniques, Thomson Scattering in particular, for high temperature magnetically confined plasmas.

Qualifications: Knowledge of optical plasma diagnostics is paramount. Demonstrated experience with at least one of the following: Thomson Scattering, Spectroscopy, Laser interferometry and Polarimetry. Familiarity with other diagnostic tools is highly desirable. Demonstrated ability to interact with experimental and theoretical physicists and engineers. Ability to work independently as well as part of a team.

Other Beneficial Skills: Experience with Compact Toroidal Plasmas. Data analysis and plasma modeling. Familiarity with neutral beam injection, edge plasmas and edge neutrals. Comfortable with working in a schedule-driven environment.

Education and Experience: The successful candidate must have a Ph.D. in experimental Plasma Physics or in a closely related discipline. Two or more years of post-doctoral experience or an equivalent combination of education and experience are desirable.
Assistant Project Engineering Manager

The Assistant Project Engineering Manager will report to the Chief Engineer, who reports to the Chief Operating officer and will be responsible for the day to day management of the key engineering functions related to the further development of the Company’s plasma technology. This includes management of electrical, mechanical, I&C, and structural engineering functions. Responsibilities include technical leadership, budgetary control, schedule compliance, and overall quality of the engineered products and systems.

As a member of the senior engineering team, the Assistant Project Engineering Manager is expected to actively participate in the engineering management team, and develop a strong working relationship with other employees in the company. This position demands an individual who can drive decision making and provide leadership, motivation, and program management to achieve milestones on time and budget, as well as make direct, hands-on engineering and technology contributions.

**Qualifications:** Proven experience in leading multi-disciplined teams of scientists and engineers in the design, construction and operation of large multidisciplinary R&D projects involving large-scale components and complex systems. Experience in commercializing R&D technologies. Ability to work in a start-up environment where quality and timeliness are essential.

**Other Beneficial Skills:** Experience with high vacuum systems is beneficial; familiarity with electromagnets and/or very high voltage experiments is a definite plus. Experience in either fusion or fission nuclear design is desired. Good verbal and written communication skills are essential. Registration as a Professional Engineer is also a definite plus.

**Education and Experience:** An MS in mechanical, electrical engineering or a related engineering discipline is required. A PhD is a plus but not essential. At least 15 years experience in senior engineering management in large facility design and construction. Power generation design is a definite plus. Experience in both the private sector and national lab sector is preferred.
Senior Mechanical Engineer

This challenging position will include the critical mechanical engineering design, construction and operation of the company’s systems and technology.

**Qualifications:** Detailed understanding of mechanical component design. Experience required in the design and fabrication of large multidisciplinary R&D projects involving large scale components and complex systems. Both the ability to work independently as well as a member and coordinator of a team is required. Must be able to manage multiple priorities effectively and have proven decision-making skills.

**Other Beneficial Skills:** Basic understanding of high voltage electrical systems and familiarity with electro-magnets is a plus. Experience in either fusion or fission nuclear design. Experience with high vacuum systems is beneficial. Good verbal and written communication skills.

**Education and Experience:** A BS or MS in mechanical engineering or in a related engineering discipline. At least 12 years relevant experience at a senior engineering level in large facility design and construction. Power generation design is a definite plus.
Lead Experimental Operator

This challenging position is responsible for the efficient day-to-day operation of the R&D experiment including personnel and machine safety during operations.

**Qualifications:** Experience in coordination of diverse groups of scientists, engineers, and technicians. Must be able to manage multiple priorities effectively and have proven decision-making skills. Familiarity with experimental operation of mechanical and high voltage systems. Basic ability to detect faults in such systems. Knowledge of required safety procedures. Requires both the ability to work independently as well as a member and coordinator of a team.

**Other Beneficial Skills:** Experience in the operation of large multidisciplinary R&D projects involving large-scale complex systems, including pulsed power. Basic understanding of electromagnets, high vacuum concepts, and plasma diagnostics. Excellent verbal and written communication skills.

**Education and Experience:** A BS or MS in a relevant physics or engineering discipline. At least 5 years relevant experience in large multi-personnel experimental programs.
Mechanical Technician

**Required Skills:** Must have basic mechanical skills, familiarity with hand tools, and be able to read mechanical plans. Experience with operation of mechanical systems is required. Basic knowledge of electrical systems is beneficial. Both the ability to work independently as well as a member of a team is essential.

**Other Beneficial Skills:** Experience in building and maintaining large R&D equipment is a plus. Basic knowledge of the operation of high voltage systems. Basic understanding of high vacuum concepts. Experience with simple machining operations. Good verbal communication skills.

**Education and Experience:** High school or equivalent qualification. At least 5 years experience as a mechanical technician or similar field.