

# Pulse Power Design Engineer

Sydor Technologies LLC — Location: Rochester, New York

## COMPANY OVERVIEW

Sydor Technologies ([www.sydortechnologies.com](http://www.sydortechnologies.com)) is a global leader providing comprehensive, customized solutions for the most complex measurement challenges in the defense, energy, security and research industries. We pride ourselves on being a trusted, collaborative partner for our customers while solving technical problems with innovative solutions. Sydor's US-based operations specialize in high-speed imaging systems and diagnostics. The company's UK operations specialize in ballistic and impact testing systems, as well as scoring systems. The company operates in 33 countries around the world with its global headquarters being located in Rochester, NY.

Sydor Technologies is a high growth, small business, focused on growing organically as well as through strategic acquisitions. The company has been featured as one of the fastest growing companies in Rochester (NY) Top 100 and in the top 25% of Inc. Magazine's 5000 fastest growing companies nationwide. Our success is a testament to our employees and their commitment to customer focus, team work and high performance. Our employees are some of the best and the brightest in the industry and are the company's greatest asset.

## POSITION SUMMARY

Sydor Technologies has an immediate need to fill the position of Pulsed Power Design Engineer based in Rochester, New York. Competitive candidates will be enthusiastic physicists and design engineers eager to both create and improve upon pulser designs for integration in diagnostics deployed primarily in scientific research laboratories. An ideal applicant would be experienced in electronic and pulse power design with a broad understanding of both analog and digital technologies, fast electronics, and comfort with high power (both voltage and current) applications. A results-focused and self-managed attitude is desired, maintaining strong ownership of the design and practical testing of the system prior to release.

The successful candidate will join Sydor's technical team of very talented and dedicated optical, electrical, mechanical, systems, and software engineers, scientists and technicians engaged in developing custom instrumentation for the scientific research community. They will work with world renown leaders in the field on a peer-to-peer level and ultimately will lead all aspects of the development of state-of-the-art high voltage pulsers and custom diagnostics (inclusive of solid state HV Pulsers to >50 kV, arbitrary waveform generators, fast electronics, and ultra-fast optical and x-ray framing cameras).

### Essential Functions

- Take the lead role in the simulation and design of both the circuits and the system of high voltage pulsers (up to 50 kV) for custom diagnostics
- Work with senior engineers (both industrial and national laboratory collaborators) to support the development of custom high voltage, high power pulsers
- Work with our multi-discipline team to coordinate system level objectives and use professional judgement to make design tradeoffs and solve problems
- Engage in personal technical growth

### Secondary Functions

- Contribute to technical calls with end-customers, transitioning challenging specification requirements to deployable designs
- Report on progress and communicate technical details with the pulser team

### Position Qualifications

- MS or PhD (preferred) in Physics or related discipline
- Minimum of 5 years of experience with high power pulsed systems, switch-mode power electronics system design (>1 kV and >1 kA), RF circuits, or related products
- Experience with switching elements (such as IGBT, MOSFET, GaN transistors)
- Awareness of microstrip and transmission lines and impedance matching theories
- Design, simulation, and test experience with analog or digital controls and circuits
- Experience with high speed and high voltage circuit design and PCB layout
- Experience with simulating circuits with PSpice, LTspice, or equivalent
- Experience with designing (or supporting a team) to meet concerns of adjacent disciplines such as thermal, structural, mechanical, reliability, and quality
- Excellent written and verbal communication skills at both the small and large team level
- Strong organizational skills and ability to work independently
- Personal commitment to quality and success
- Willingness to travel occasionally (10%)

### Desired Skills

- Background in Nuclear Physics (Inertial Confinement Fusion, Radioactive Environments)
- Experience with magnetic devices and circuits
- Experience using control theory
- Self-starter, a quick learner, be able to function in a dynamic environment, and have good time-management skills
- Demonstrated ability to work effectively with coworkers from diverse communities and cultures