

Web Developer & Technical Lead – ComPADRE Digital Library

Organization: American Association of Physics Teachers (AAPT)

Location: College Park, MD (Hybrid / Remote Options Available)

Position Type: Full-Time

About the ComPADRE Digital Library

The **ComPADRE Digital Library** (compadre.org) is a premier, network-based infrastructure of free online resource collections and community websites supporting faculty, students, and teachers in physics and astronomy education. ComPADRE serves as a central hub for high-quality educational tools, materials, and physics education research.

Rather than managing standard association-level web pages, the individual in this role will focus entirely on the ComPADRE ecosystem. You will drive the development, infrastructure, and technical execution for our core platform and specialized partner collections, including **PhysPort** (physport.org), **PICUP** (picup.org), **PER-Central** (per-central.org), and **Open Source Physics** (opensourcephysics.org).

Position Summary

AAPT is seeking a talented, self-driven **Web Developer & Technical Lead** to spearhead the engineering, maintenance, and long-term modernization of the ComPADRE Digital Library network. In this role, you will act as the primary architect and full-stack developer, ensuring high availability, robust database performance, and an intuitive user experience across all ComPADRE collections.

This position requires a blend of strong technical execution—specifically with ColdFusion (CFML) and SQL Server—and project management capabilities to guide new features from conception to deployment based on the needs of the physics education community.

Key Responsibilities

- **Full-Stack Development & Architecture:** Design, build, test, and deploy dynamic, database-driven web applications and user interfaces across the ComPADRE network.
- **Project & Client Management:** Conduct customer needs analysis and manage web projects through their entire lifecycle, from initial conception and requirements gathering to final deployment.
- **Database & Metadata Management:** Oversee information architecture and metadata standards across federated collections. Author and optimize complex Stored Procedures to ensure efficient data handling.

- **System & Security Maintenance:** Ensure website security best practices are strictly followed. Maintain system stability, manage specialized publication tools (PDF processing, DOI generation), and handle server-side environments.
- **Collaborative Leadership:** Work effectively as part of a team, taking direction from leadership while independently making sound technical recommendations to advance the platform.

Qualifications & Technical Skills

Education & Experience

- **Education:** Bachelor’s degree in Computer Science, Information Technology, or a related field, **OR** equivalent professional work experience.
- **Core Experience:** 3+ years of professional experience in database design, web interface programming, and building dynamic, database-driven web applications.

Technical Requirements

Category	Required Skills	Preferred Skills
Languages & Frameworks	<ul style="list-style-type: none"> * JavaScript * CSS * ColdFusion (CFML) 	<ul style="list-style-type: none"> * Node.js
Database & Search	<ul style="list-style-type: none"> * Strong SQL skills * Microsoft SQL Server * Writing & optimizing Stored Procedures 	<ul style="list-style-type: none"> * SOLR search engines
Web Architecture & Infrastructure	<ul style="list-style-type: none"> * Information architecture * Metadata standards * Website security best practices 	<ul style="list-style-type: none"> * AWS (Amazon Web Services) * IIS hosting * OAuth2 authentication * AI/Web integration

Category	Required Skills	Preferred Skills
Specialized Tools & Systems	* Standard web development tools	* iMIS EMS & the iMIS API * Automated PDF processing * Pandoc * DOI generation

Professional & Interpersonal Skills

- **Communication:** Excellent written and oral communication skills, with a proven ability to translate complex technical concepts clearly for non-technical stakeholders, educators, and researchers.
- **Teamwork & Autonomy:** Strong ability to work collaboratively within a multidisciplinary team environment. Must be able to take direction smoothly while possessing the initiative to make independent, data-driven technical recommendations.
- **Execution:** Highly organized with a proven track record of delivering stable, secure web content and services on schedule.

Benefits & Perks

- Comprehensive health, dental, and vision insurance.
- Generous retirement plan with employer contribution matching.
- Flexible hybrid/remote working arrangements.
- Paid time off, holidays, and professional development support.
- The opportunity to directly impact the global physics and STEM education community.

How to Apply

To apply, please submit your resume, a cover letter highlighting your experience with database-driven web applications and the required tech stack, and a link to your portfolio or GitHub profile to hr@aapt.org with the subject line *"Web Developer – ComPADRE"*. Applications will be reviewed starting July 15 and will continue until the position is filled.

The American Association of Physics Teachers (AAPT) is the leading professional membership organization dedicated to enhancing the understanding and appreciation of physics through teaching. Founded in 1930, AAPT supports a diverse, global community of physics educators, researchers, and students across all academic levels, from K-12 through higher education. By

providing top-tier professional development, publishing premier peer-reviewed journals, and hosting national conferences, the association fosters a vibrant environment committed to advancing excellence and equity in physics education.