Job Title: JD0011 SWIR QD Device Manager

Location: Hsinchu/Taipei, Taiwan

Employment Type: Full-time

About AilumiQ:

AilumiQ is an innovative deep-tech startup focused on revolutionizing the production of advanced materials, particularly next-generation quantum dots. We are pioneering an automated microreactor platform powered by artificial intelligence to achieve unprecedented levels of precision, efficiency, and scalability in material synthesis. Our mission is to overcome the limitations of traditional manufacturing methods and unlock the full potential of quantum dot technology for various cutting-edge applications. Join our dynamic team and be part of shaping the future of advanced material production.

Job Summary:

We are seeking a highly motivated and experienced **SWIR QD Device Manager** to **lead the strategy, execution, and team development** for our short-wave infrared (SWIR) quantum dot (QD) photodetector program. This critical leadership role involves **directing device development efforts**, **managing a small technical team/contractors**, and **driving the successful translation of novel PbS QDs into high-performance, commercially viable devices**. The Manager will serve as the primary technical expert for device architecture, fabrication processes, and advanced characterization, ensuring seamless integration between material science and device engineering.

Key Responsibilities:

Strategic Leadership & Program Management:

- **Define and execute the technical roadmap** for SWIR QD photodetector development, setting clear milestones for performance (e.g., responsivity, detectivity, noise) and stability.
- **Lead and mentor** a team of engineers and technicians (internal and/or contract) in device fabrication, characterization, and process optimization.
- **Manage cleanroom/inert environment operations** (glovebox work), ensuring high standards for safety, material handling, and process control.
- **Serve as the primary liaison** between the Device team, the Quantum Dot Synthesis/AI team, and potential external partners/foundries.

Device & Process Development Oversight:

- **Direct the design and optimization** of novel photodetector architectures utilizing PbS QDs, focusing on stability, efficiency, and manufacturability.
- **Oversee the development and standardization** of critical thin-film deposition and processing techniques (e.g., spin-coating, ligand exchange, annealing, electrode deposition) for multilayer device stacks in inert environments.
- **Establish and maintain rigorous quality control** and standard operating procedures (SOPs) for all fabrication and characterization steps.

Advanced Characterization & Analysis:

- **Define and implement comprehensive characterization protocols** for finished devices (e.g., I-V, EQE, spectral response, noise analysis) and thin-film materials (AFM/SEM, XRD/TEM, optical spectroscopy).
- **Lead systematic failure analysis** and advanced troubleshooting to identify root causes of performance limitations and drive corrective actions.
- **Utilize strong data analysis skills** (e.g., Python, MATLAB) to interpret complex datasets, correlate material properties with device performance, and generate actionable insights.

Documentation & Reporting:

- **Prepare and present detailed technical reports, progress updates, and strategic recommendations** to AilumiQ leadership and the broader technical team.
- Ensure meticulous documentation of all device builds, experimental data, intellectual property, and process refinements.

Preferred Skills and Experience:

- **Education: Ph.D. highly preferred** (Master's degree with significant relevant experience considered) in Materials Science, Electrical Engineering, Physics, Chemistry, or a related field.
- **Direct Experience: 5+ years of hands-on experience** in the fabrication and characterization of thin-film optoelectronic devices (e.g., Quantum Dot Photodetectors, QLEDs, or Perovskite devices), **including 1+ years in a project leadership or managerial role.**
- **Core Material Knowledge:** Deep expertise in the synthesis, surface chemistry (ligand exchange), processing, and physics of colloidal **PbS Quantum Dots**.
- **Technical Leadership:** Proven track record of managing technical projects, driving process transfer, and mentoring junior staff.
- **Environment Proficiency:** Extensive, proven proficiency working within an **inert atmosphere glovebox** for moisture/oxygen sensitive material and device processing.

- **Data Analysis & Modeling:** Exceptional ability to interpret and model complex optoelectronic data; proficiency with data analysis software (e.g., **Python/MATLAB**).

Benefits:

At AilumiQ, we offer a comprehensive and supportive benefits package designed to empower our team members:

Statutory Benefits: Maternity/Paternity Leave, Family Care Leave, Labor Insurance, Health Insurance, Accompanying Spouse's Maternity Leave, Special Leave (Annual Leave), Parental Leave, Menstrual Leave, Labor Pension Fund Contribution, Prenatal Check-up Leave, Epidemic Prevention Leave, Employee Health Check-up, Weekends Off.

Other Benefits: Employee Stock Options, **Performance-Based Bonus (Year-End Bonus)**, Snack Bar & Coffee Station, Paid Travel Leave, **Paid Sick Leave (Better than Labor Standards Act)**, Employee Training Subsidies, Department Gatherings, **Flexible Remote/Work-From-Home Options**, Open Office Environment for Easy Team Integration.

Enhanced Benefits for Full-Time Employees:

- Guaranteed **14 Days of Annual Leave** (pro-rated based on time of employment), encouraging work-life balance.
- **Flexible Working Hours** to accommodate family care needs.
- **Annual External Training Budget** to support continuous skill development.
- **Monthly Welfare Allowance of NT$2,000** for leisure activities (massage, beauty, dining, travel, etc.).
- Employee Laptop Subsidy and Health Check-up Subsidy.

To Apply:

Please submit your resume and cover letter detailing your relevant **leadership experience**, expertise with SWIR devices, and why you are interested in joining AilumiQ to **hire@ailumiq.com**. We look forward to hearing from you.