POET Technologies, Inc.

TSXV: PTK  OTCQX: POETF

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Safe Harbor

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News this Morning!

PRESS RELEASE

POET and Sanan IC Sign LOI to Form $50 Million Joint Venture

Proposed JV Aims to Disrupt the Data Center Market with Superior Economics and Scale using the POET Optical Interposer™

TORONTO, Ontario, June 30, 2020 — POET Technologies Inc. ("POET" or the "Company") (TSX Venture: PTK; OTCQX: POETF), the designer and developer of the POET Optical Interposer and Photonic Integrated Circuits (PICs) for the data center and telecommunication markets, today announced that the Company signed a Letter of Intent to establish a joint venture with Xiamen Sanan Integrated Circuit Co. Ltd. ("Sanan IC") to manufacture cost-effective, high-performance optical engines based on POET’s proprietary CMOS compatible Optical Interposer platform technology.

The proposed joint venture ("JV") will be formed with contributions of US$50 million based on a combined commitment of cash and intellectual property from Sanan IC and intellectual property and know-how from POET. Sanan IC is a world-class wafer foundry service company with an advanced compound semiconductor technology platform, serving the optical, RF microelectronics and power electronics markets. Sanan IC is a wholly owned subsidiary of Sanan Optoelectronics Co., Ltd. (Shanghai Stock Exchange, SSE: 600703), the leading manufacturer of advanced ultra-high brightness LED epitaxial wafers and chips in the world. The JV is expected to design, develop, manufacture and sell 100G, 200G and 400G optical engines with customized lasers and photodiodes from Sanan IC combined with optical interposer platform technology from POET. Based on know-how from both companies, such optical engines are engineered for high yield and large-scale to meet the burgeoning market for high-speed data communications applications, including internet data centers and 5G carrier networks.

The proposed joint venture will offer a new generation of cost-effective, high-performance optical engines based on POET’s Optical Interposer to module manufacturers, systems suppliers, data center operators and network providers globally.
Why a POET - SANAN IC Joint Venture?

• **COST** - Optical Engines based on the POET Optical Interposer™ can deliver an immediate and sustainable cost advantage to companies building or using optical transceiver modules of between 25% and 40% compared to components and methods that currently constitute an optical engine.

• **VOLUME AND SCALE** - Sanan IC’s manufacturing operation can deliver volume and the ability to scale production that is unequalled in the compound semiconductor industry. The proven ability to manufacture in high volume is required to penetrate large customers.

• **REACH** - Sanan has a global reach, reputation and a capability to invest that far surpasses POET’s. On its own, POET would have limited ability to address the highest volume markets with the largest opportunities for growth and profitability and certainly not within the time periods that we hope to achieve with the JV.
Photonics Design & Development Company

- **Employees**: 26
- **Patents And 9 Pending**: 69
- **Technology Platforms**: 02
- **Operating Subsidiary**: 01

**Publicly Traded** – TSX Venture (Canada) – PTK.V and OTC QX (United States) - POETF

- **Optical Interposer Platform**
  - Waveguides with integrated passives enable wafer-scale fabrication, integration, assembly and testing of photonic and electronic devices on a single platform

- **Indium Phosphide (InP)**
  - POET designed Lasers, Photodetectors and Modulators manufactured by sub-contractors specifically for the POET Optical Interposer

POET Technologies Pte Ltd
Singapore

Corporate HQ (Incorporated in Ontario)
Toronto, Canada

Design, Fabrication and Testing
Changi Road, Singapore

Admin, Design, and Lab
Allentown, PA
Sanan IC, subsidiary of Sanan Optoelectronics Inc.

Sanan IC
Xiamen Sanan Integrated Circuit Co., Ltd. (also "SAIC")
- Located in the Xiamen Torch High-Tech Industrial Development Zone, with a total investment of US$500 million on a planned area of 180,000 square meters
- Compound semiconductor manufacturing platform
- Process technologies for microwave radio frequency, high power electronics, and optical
- In-house capability and vertical integration of substrate materials, epitaxy growth and wafer fabrication

Sanan Optoelectronics Co. Ltd. (Parent)
- Founded in 2000
- Vertically integrated: GaN, GaAs, and SiC chips for LED, filters, power electronics, microwave integrated circuits, and optical communications
- Produces 25 million 6” wafers per year in 8 wholly owned subsidiaries in 4 locations on over 8,500 acres of land
- US$1 billion Revenue; US$14 billion market cap
- Shanghai Stock Exchange (600703)
Key Terms Included in the Letter of Intent*

- **To form a Joint Venture Company between Sanan IC and POET located in Xiamen (PRC):**
  - Assembly, Test, Marketing and Sale of 100G/200G/400G Optical Engines based on the **POET Optical Interposer™** for data communications and telecommunications applications

- **Commercial Exclusivity:**
  - 100G/200G Optical Engine production and sale globally is exclusive to the JV
  - 400G Optical Engine exclusive for Greater China Territory (PRC, Taiwan, Macau, Hong Kong)
  - POET’s preferred supplier for 400G optical engines for direct sale outside the Greater China Territory

- **Contributions of the Parties:**
  - Sanan IC will contribute cash capital to cover equipment and working capital for the JV
  - POET to provide IP and know-how to the JV (cash contribution limited to US$135,000 for initial formation)
  - Sanan IC will provide foundry services for lasers, photodetectors, other active devices
  - POET will supply the completed Optical Interposer platform

- **IP Licenses:**
  - POET to JV - IP and know-how related to assembly, test and packaging of Optical Engines
  - Sanan IC to JV - designs of active devices provided to JV for placement on POET Optical Interposer
  - The IP licenses are exclusive and royalty-free to the JV for its sole use and for the term of the JV
  - No fundamental process or design IP of the POET Optical Interposer to be transferred

- **Valuation:**
  - US$50M valuation is based on the cash contribution of Sanan IC and the value of the IP and know-how from POET
  - The POET IP is subject to a valuation by an independent third-party expert qualified in China

- **Equity Distribution:**
  - Upon start of volume production of Optical Engines by the JV, POET will own 47% and Sanan IC will own 53%

*Formation of the proposed Joint Venture is subject to reaching definitive agreements and the approval by both companies' boards of directors.*
Penetrating the Market for Optical Transceivers

- Substantial market share gains can be achieved by offering customers a 25% - 40% cost advantage for Optical Engines based on the POET Optical Interposer and priced at 25% - 50% of the prevailing price of Optical Transceivers combined with the ability to produce and scale to high volumes required by customers.

Source: Various Industry Sources and Internal Estimates
Virtually all long-distance communication in the world is carried by global fiber optic networks. With few exceptions, all data transmission, both inside the data center and from the “cloud” to the metro area is also via fiber optic networks.
Optical Transceivers are a Key Network Component

The essential device that makes this possible?

The Optical Transceiver

Optical Transceivers convert digital electronic signals into light and back again at both ends of global fiber-optic networks.
POET’s Optical Interposer-based Optical Engine

- An Optical Engine is an integrated device that emits, guides, modulates and detects light, and communicates with other electronic devices within the optical transceiver module.
The POET Optical Interposer™ Platform

- A novel, patented approach to device integration at wafer-level that addresses the high cost and complexity of integrating electronic and photonic devices in a way that meets the challenges of increasingly high speeds of data communications.

- At ultra high speeds, signals from electronic and photonic devices weave through a matrix of copper and aluminum traces layered into a Silicon wafer.

- Expandable to virtually any size and shape, within the limits of a Silicon wafer, with features to address multiple configurations and different devices, the POET Optical Interposer is a true platform technology, ready to address broad applications combining photonics and electronics.
What makes the POET Optical Interposer Platform so unique?

- Low-loss, single mode passive waveguides with unique properties that facilitate device integration on any size silicon wafer - adaptable to a wide range of devices
- Total CMOS compatibility for exploiting true wafer-scale assembly, test and packaging - driving down complexity and cost
- An elegant design and assembly scheme that provides maximum flexibility and unparalleled scalability that can span multiple product generations and applications
Conventional Optical Engines - built one at a time (approximately 60% of current production)

Conventional Approach Cost Drivers:

- Many points of failure that can lower yield and increase cost
- Consumable materials such as solder, silver paste and UV epoxies are needed
- Active alignment of lasers to waveguide is required
- Expensive CAPEX investment is needed to scale production
POET Optical Engines - built 500 at a time, replacing multiple components

In contrast to Conventional approaches, the POET approach:

- Reduces number of yield points (fewer failures)
- Eliminates active alignment of the laser to waveguide (huge savings)
- Eliminates the need for many incidental materials, including consumables
- Minimizes expensive alignment equipment for scaling production
- Utilizes a known good OE die to increase final yield and lower cost
Eliminating Costly Components and Miniaturizing the Transceiver

Optical Engines (TOSA and ROSA)  |  Control Electronics

Replacing the Receive (ROSA) and Transmit (TOSA) modules

With a single POET Optical Engine

POET

10mm

30mm

POET Technologies Inc. | PUBLIC
A Platform that Unlocks Tremendous Market Potential

• **Wafer-scale Photonic Integration**
  - Optical Engines - receive and transmit
  - Light Bars - multiple aligned lasers
  - Receivers - multiple detectors
  - Passive Assemblies - filters and waveguides

• **Multiple Application Spaces:**
  - **Data Center Market**
    - Optical Engines for Datacom 100G, 400G and 800G Transceivers
  - **Telecommunications, including 5G networks**
    - Optical Engines for Telecom (PON ONU, PON OLT and CPRI B/H)
  - **Internet of Things (IOT) and Industrial Sensing**
    - Photodetectors and photodetector arrays
  - **Automotive LIDAR**
    - CWDM Laser Modules
  - **Co-Packaged Optics**
    - Photonics-integrated ASICs (switches, graphics generators, microprocessors)
POET Executing on Growth Strategy

- Focus on Optical Interposer-based solutions
- Demonstrate device performance with existing key strategic customers
- Expect NRE Revenue in 2020
- Win orders for production quantities in datacom in 2020-21
- Expand co-development to other applications
  - Co-packaged Optics
  - Optical Computing
  - Telecom

ACQUIRED DENSELIGHT AND BB PHOTONICS

InP DEVICE PORTFOLIO FOR DATACOM

OPTICAL INTERPOSER PLATFORM

STRATEGIC DESIGN WINS FOR OPTICAL ENGINES

ORDERS FOR PRODUCTION DEVICES

NRE REVENUE AND DEVICE QUALIFICATION