

PREO

**The first nonintrusive
Pressure Measurement System
for lab-on-a-chip applications**

info@kaia.tech

(720) 4466 144

www.kaia.tech



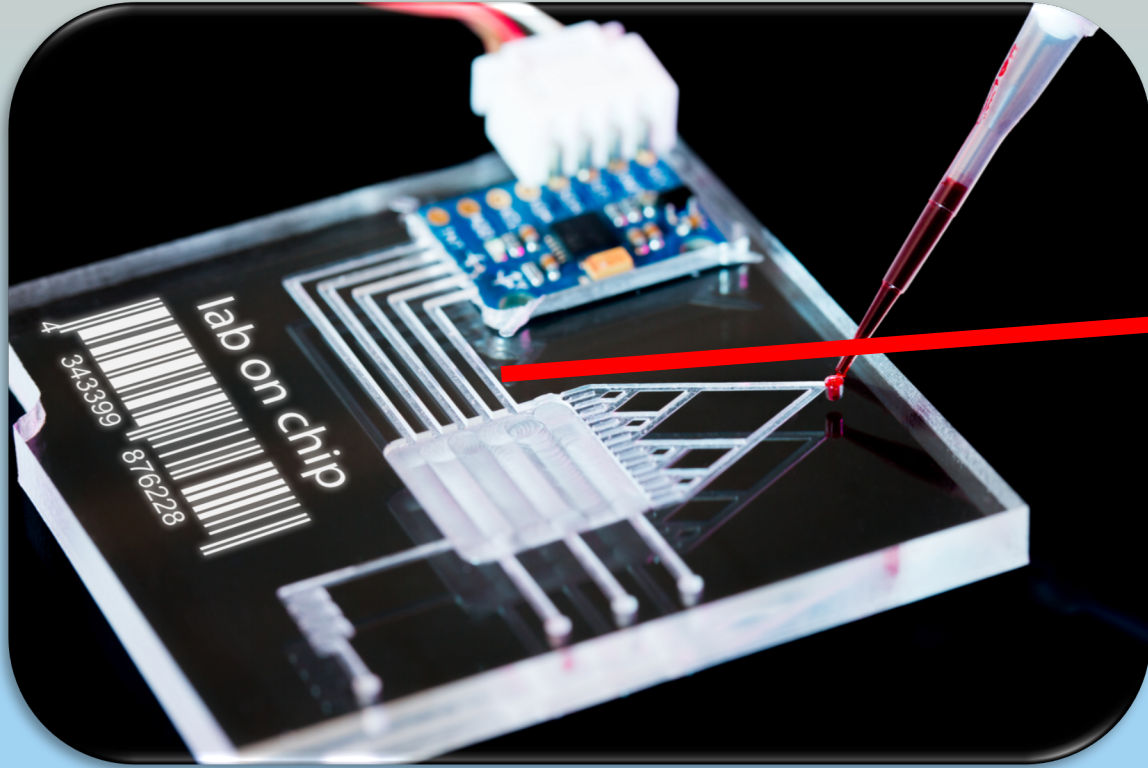
Kaia offers advanced technology development services for custom design measurement solutions.

Our flagship product is being developed to understand and characterize reservoir fluid behavior in microfluidic chips.

Problem with Conventional Testing

Conventional reservoir fluid testing can result in
up to **50%** error
in tight-rock reservoir recovery

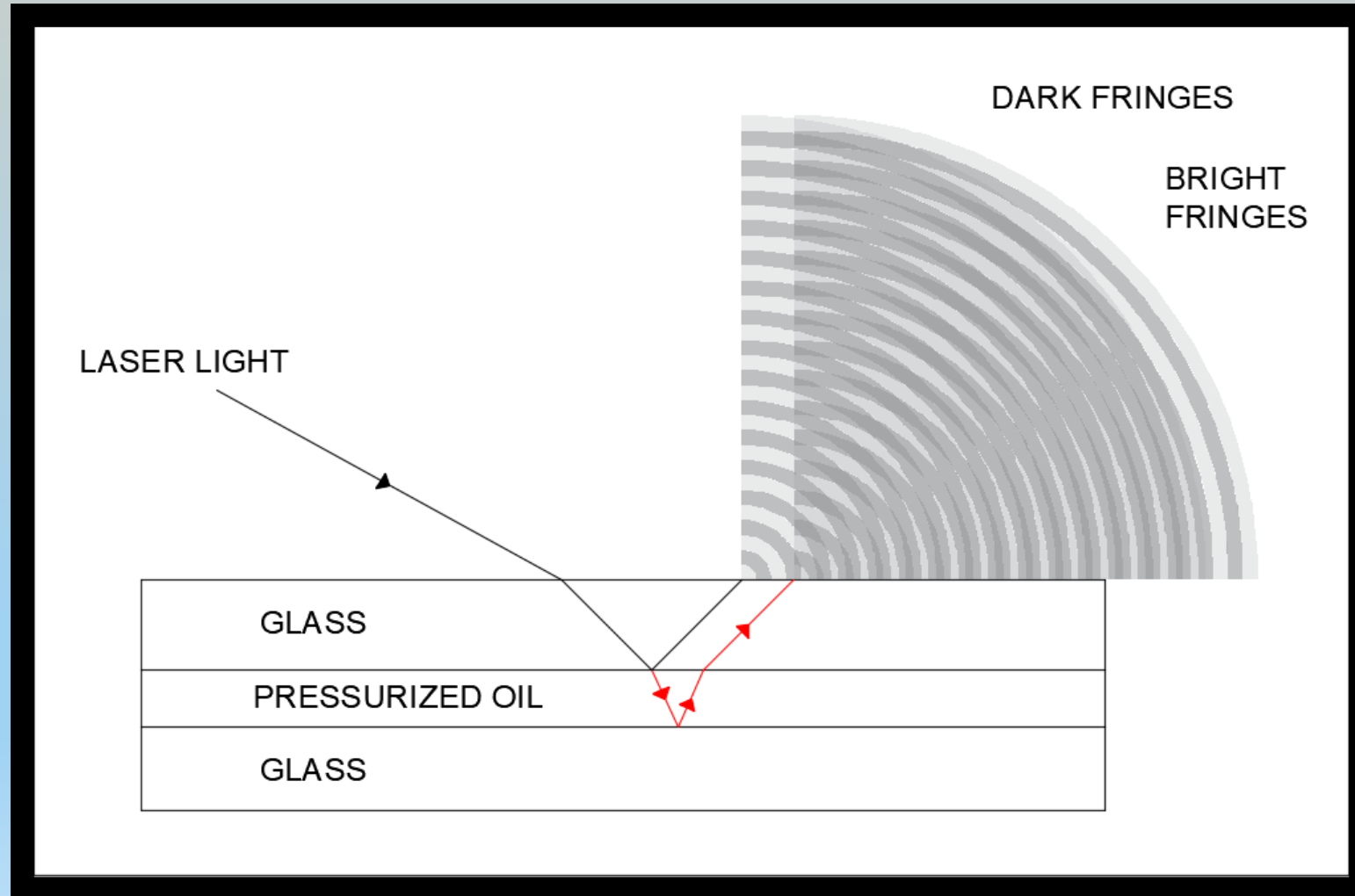
Problem with Microfluidic Testing



**Pressure inside
micro-channels
cannot be
measured!**

KAIA's Solution

*"Optical Pressure Measurement in Micro-Fractures"**



**Patent Pending*

CSM's Paper with Kaia

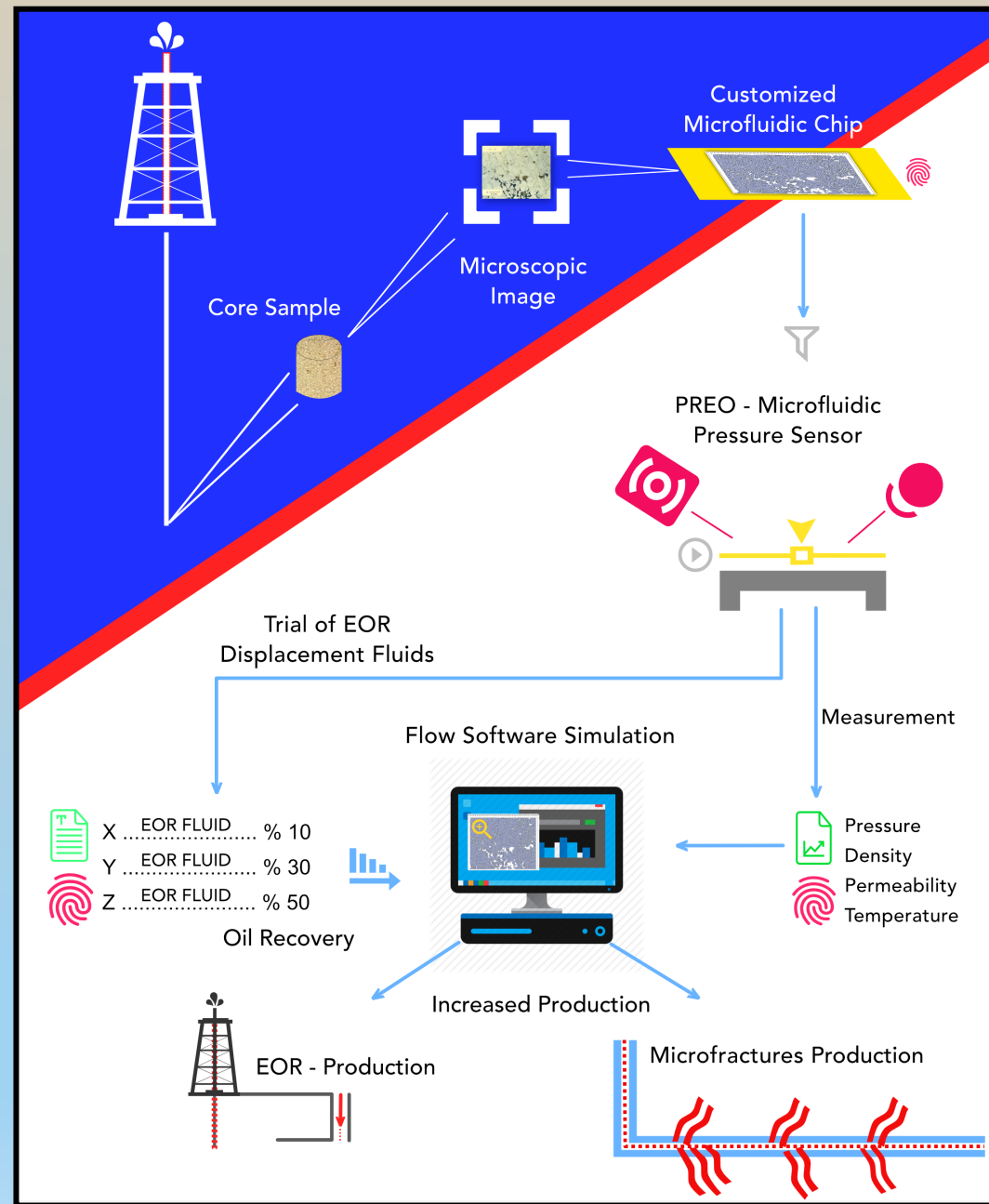
“Non-invasive Pressure sensing in Microfluidic chips using laser interferometry”

Asm Kamruzzaman, Yusuf A. Koksai, Xiaolong Yin, Hossein Kazemi, Erdal Ozkan, Necati U. Kaya

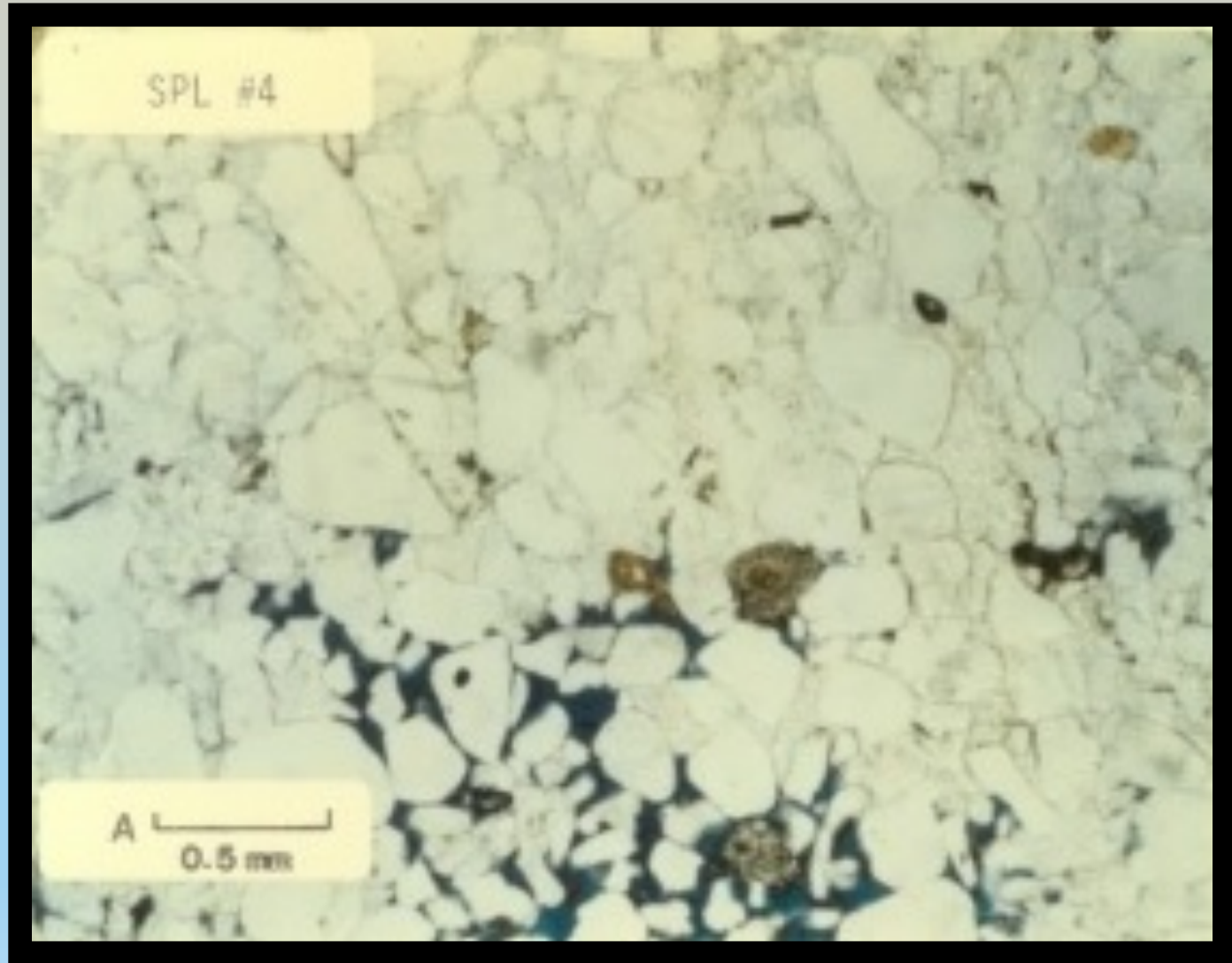
SPIE Paper Number 10973-21

SPIE – International Society for Optics and Photonics Engineers

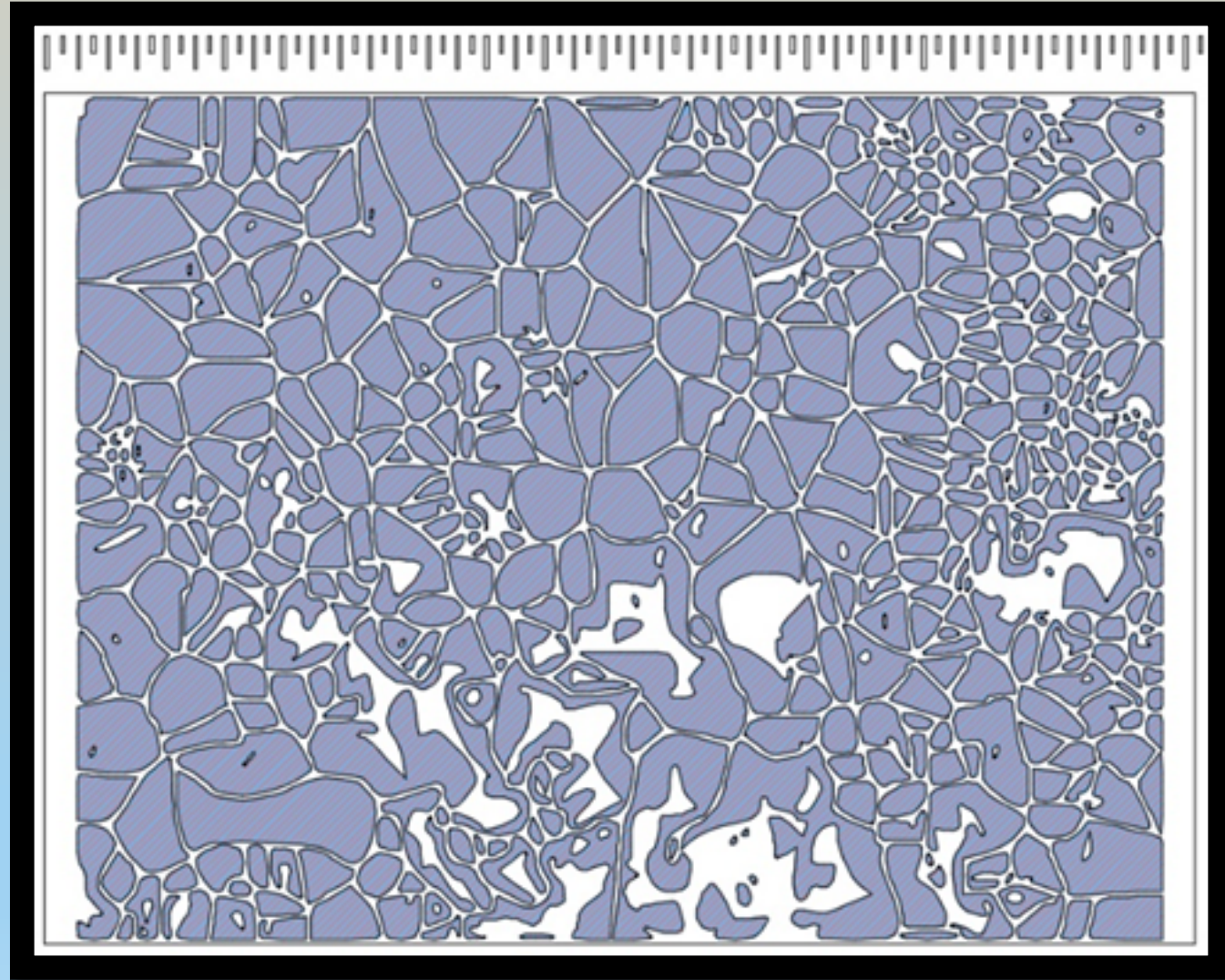
Workflow



Rock Microscopic Photo

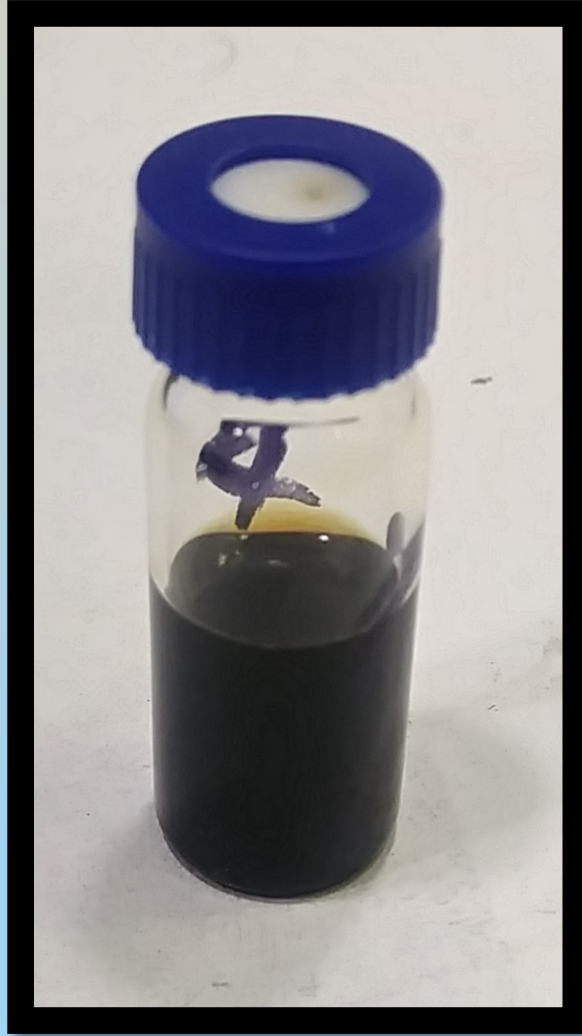


Digital Image of Rock



- **Represents Pore Size and Pore Distribution**

Reservoir Fluid



Sample Crude Oil

* Kaia Corp. Proprietary and Confidential Information. Please do not share with third parties.

KAIA's Product

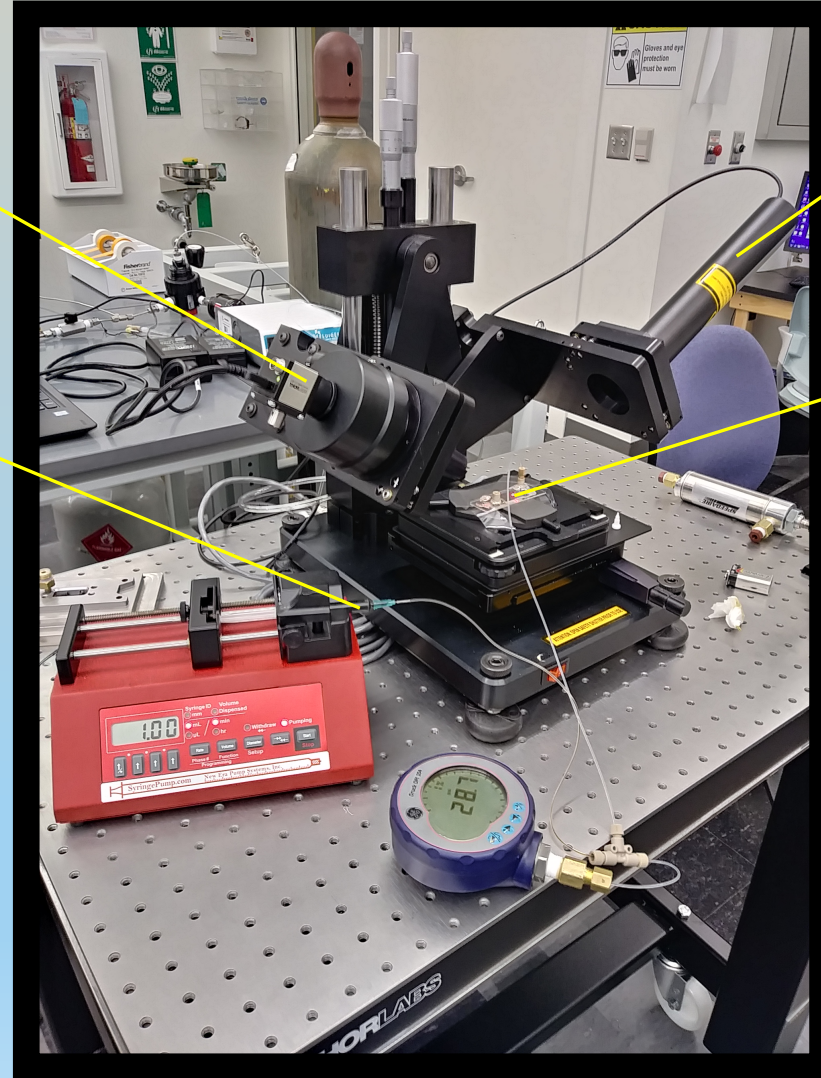
PREO Current Setup

Camera

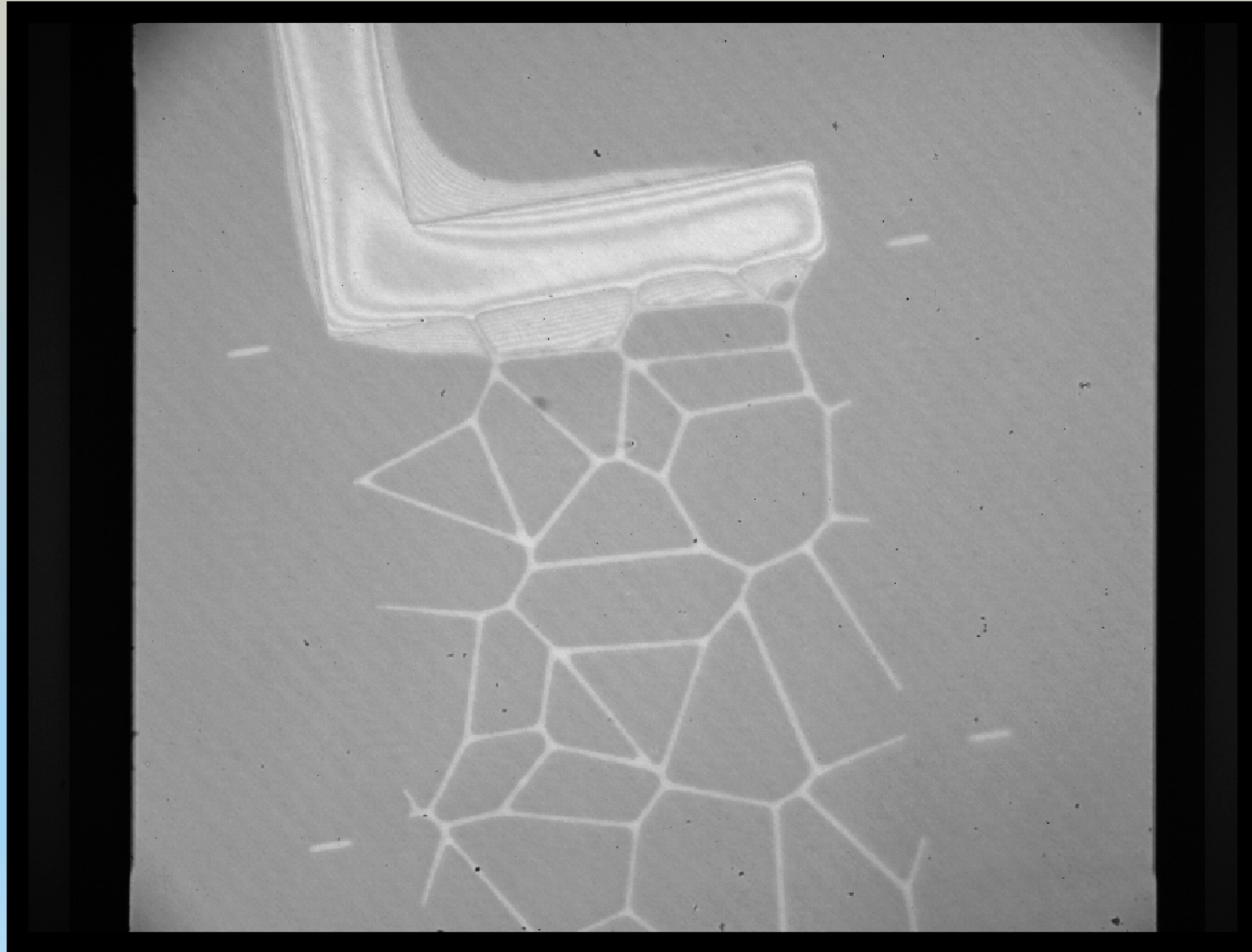
Sample Fluid

Laser

Sample Rock

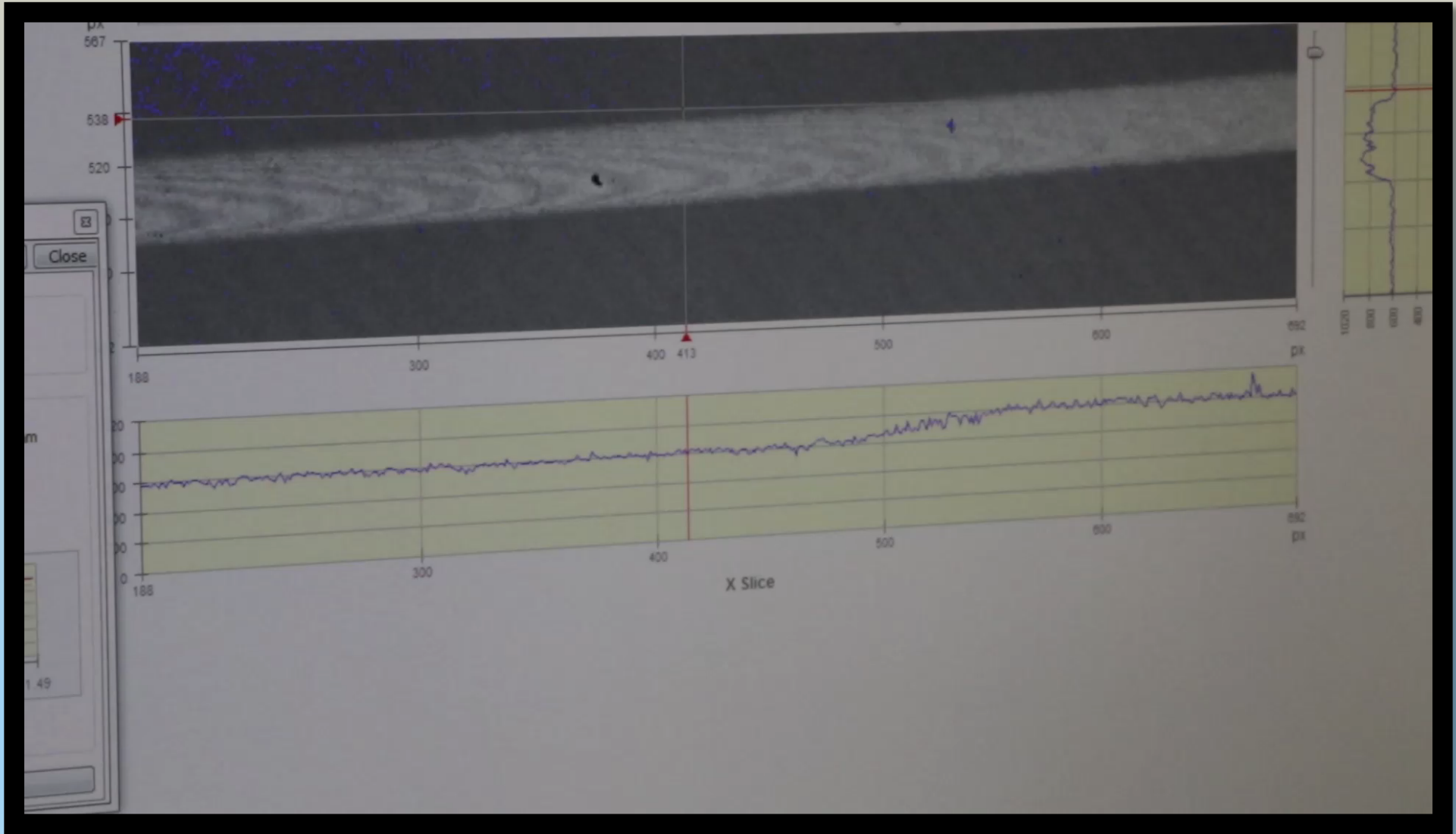


Microscopic Image for Pressure Map



* Kaia Corp. Proprietary and Confidential Information. Please do not share with third parties.

Widefield Fringe Video



Value Proposition

Knowing fluid properties in the flow network
increases oil recovery 33%

The “Other Guys”

- Equipment Manufacturers for traditional pressure testing
- Microfluidic technology developers
- Virtual Reservoir Flow Analysis Software

Available products vs Kaia

	Traditional	Kaia
In-Situ Pressure, Temperature, Density, Permeability Measurement	✗	✓
Pore sizes and network model represented	✗	✓
Overcome dead volume problem	✗	✓
Compatibility with harsh fluids	✓	✓
Measuring high pressure (>3000psi)	✓	✓
Measuring pressure at high temperature	+ 120 °C	+ 120 °C
Time	Months	Weeks
Price	~ \$ 400 K	\$ 600 K

Who are We

The Kaia Team

Akin Koksas, M.E., Product Engineer

Andrew Fahrland, M.S., Senior Optical Scientist

Elham Parsa, Ph.D., Reservoir Engineer

Glenn Williams, Ph.D., Applied Mathematician

Tyler Bigham, M.E., Product Development Engineer

Umit Kaya, M.S., PMP, Product Manager

Academic Advisors

Colorado School of Mines

Petroleum Engineering Dep.

Erdal Ozkan, Ph.D.

Hosseini Kazemi, Ph.D.

Xiaolong Yin, Ph.D.

Physics Department

Jeff Squier, Ph.D.

Charles Durfee, Ph.D.

Daniel Adams, Ph.D.

Business Advisors

Commercialization Focus Team

Elio Dean, VP Project Development at Surtek, Inc.

Tuba Firincioglu, Director at Nitec LLC

Mahmood Ahmadi, Vice President at M13 Petroleum Engineering

Mehmet Torcuk, Reservoir Engineer at EOG Resources

Sarp Ozkan, Director of Energy Analytics at Drillinginfo

Business & Marketing Advisors

Jean Berthold, Sales and Marketing

Steve Leeds, Business Development

Ed Kase, Business Development

Business Plan

Our product **displaces the legacy testing** to understand fluid behavior in reservoirs

Contacts and Potential Product Customers



SURTEK

Schlumberger

 **eog resources**



equinor

HALLIBURTON



Weatherford®



PREMIER
OILFIELD GROUP

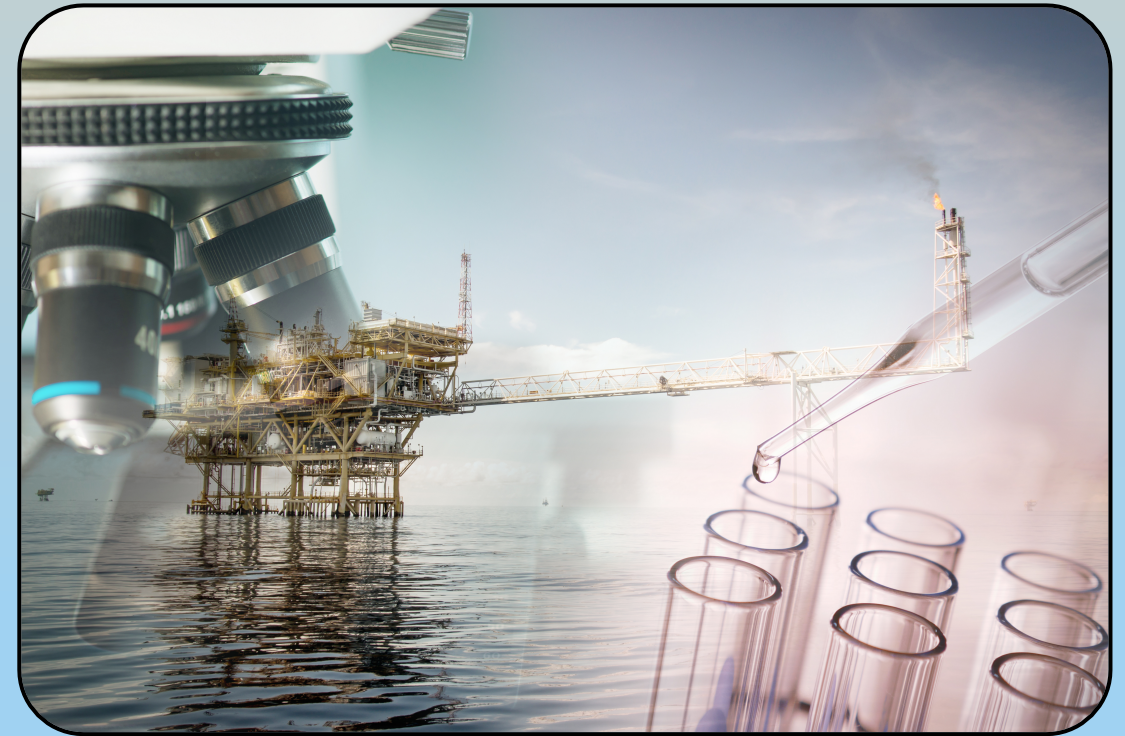
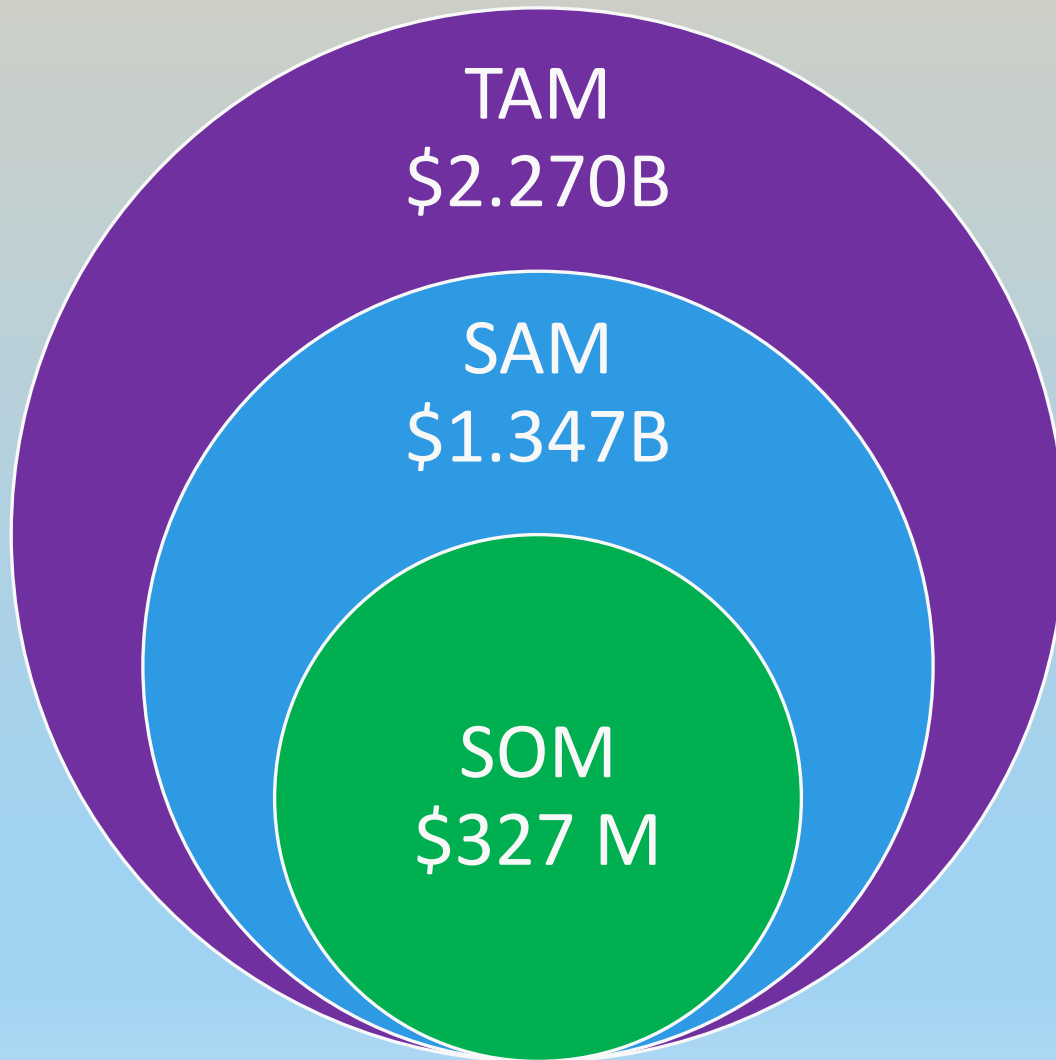


METAROCK
LABORATORIES



devon

Reservoir Analysis Market Size Assessment*



*Allied Market Research

How did We Get Here?

Funding (k\$)

	2016	2017	2018	2019	TOTAL
KAIA	24	53	20	36	133
UREP*/CSM	34			22	56
DOE		70	155		225
TOTAL	58	123	175	58	414

*Unconventional Reservoir Engineering Project Consortium

* Kaia Corp. Proprietary and Confidential Information. Please do not share with third parties.

Financial Projection (k\$)

	2020	2021	2022	2023	2024
NUMBER OF DEVICES	10	15	24	36	54
DEVICE SALES REVENUE	4,000	6,000	9,600	14,400	21,600
NUMBER OF CHIP SETS	480	1,200	2,352	4,080	6,672
MICRO MODEL REVENUE	7,200	18,000	35,280	61,200	100,080
CONSUMABLE REPEAT SALE					
CONTRACT SERVICE REVENUE	400	1000	1960	3400	5560
TOTAL REVENUE	11,600	25,000	46,840	79,000	127,240
NET INCOME after Taxes	6,258	13,919	26,248	44,603	72,297
GROSS MARGIN	68%	70%	71%	71%	72%
Unit Device Price	400				
Micro Model Price 10 pcs/set	15				

* Kaia Corp. Proprietary and Confidential Information. Please do not share with third parties.

What do We Need?

Partners for

- Commercialization support
- Advocacy
- Field Test
- Financial Support

Thank You!

info@kaia.tech

(720) 4466 144

www.kaia.tech

