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SLOPE

Structured Light Observation Perception & Evaluation device

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NOVEL DIAGNOSIS DEVICE FOR EYE DISEASES

SLOPE is a robust diagnostic device that can detect age-related macular degeneration (AMD) at the subclinical and early stages.

UNIQUE
World's first Quantum Technology in Vision Sciences

EASY TO USE
No medical training nor any eye drugs are required

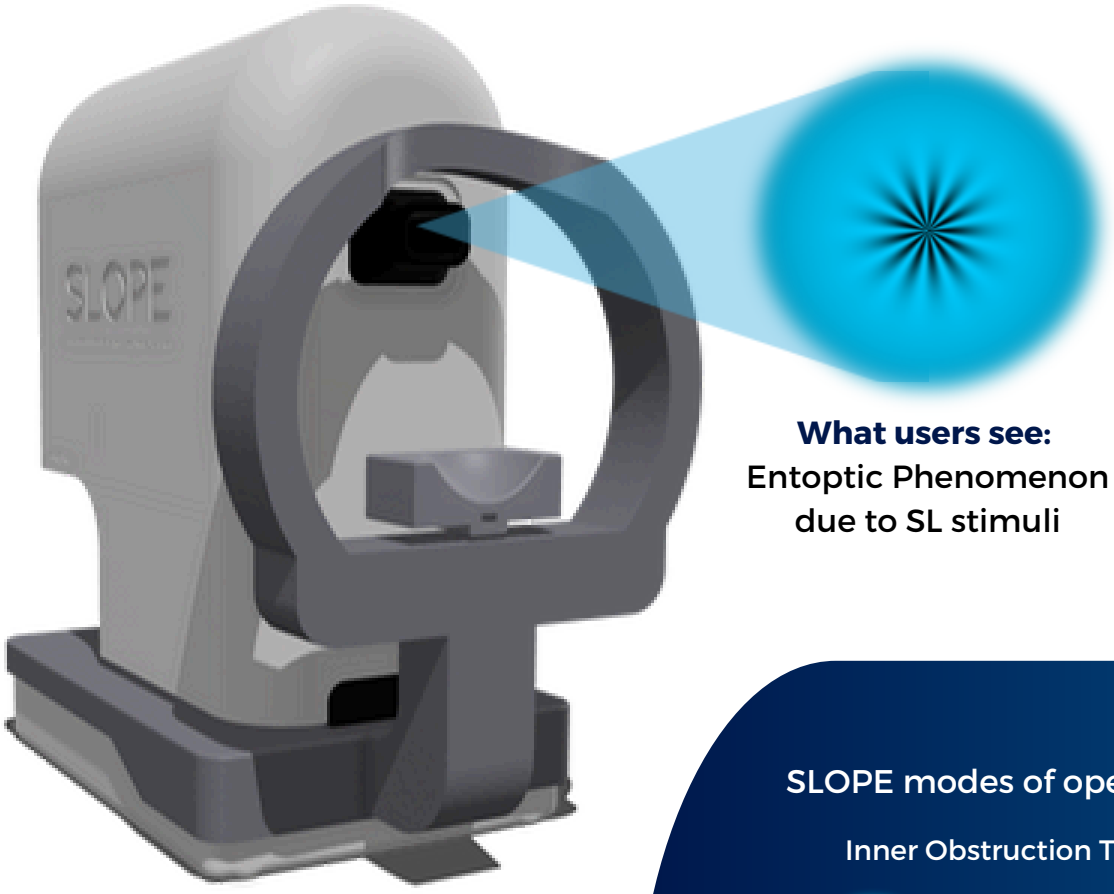
COMPACT
Portable SLOPE can be placed in pre-examination area or GP's room

FAST
Standard protocol timing is <5 mins

REPEATABLE
Proven test re-test reliability with >90% accuracy

Operation

SLOPE is used to conduct a unique psychophysical task which can test the users' ability to perceive structured light (SL) stimuli



What users see:
Entoptic Phenomenon due to SL stimuli

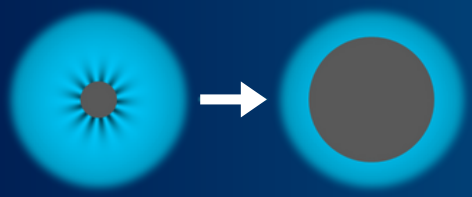
EASY-TO-USE!

Simple User Task: Identify the Direction of Rotation of the Entoptic Pattern

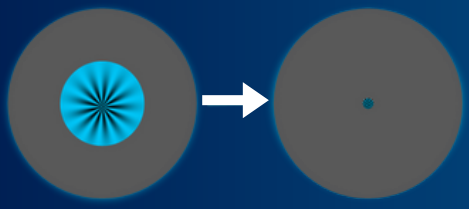
1. Choose one of the operating modes
2. Automated system in SLOPE creates different sizes of obstructions on the perceived pattern
3. Users responds with "Clockwise" or "Counter-clockwise"
4. Categorize the ability to see the SL pattern into different thresholds according to size of obstruction*

SLOPE modes of operation:

Inner Obstruction Task



Outer Obstruction Task



*SLOPE results with disease thresholds allows clinicians to objectively and quantitatively assess visual perception of SL stimuli, providing valuable insights into the patient's eye health.

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Hardware Design

HOUSING UNIQUE DIAGNOSTIC POWER IN A SIMPLE DESIGN

Elegant Outer Shell
Main body housing SLOPE's unique optical system*

Rubber-coated Objective Lens
Comfortable output of low intensity beam with SL stimuli

Joystick and Operating System
Movable joystick and simple buttons hub to command SLOPE operating modes

Adjustable Chinrest
Mechanical chinrest able to accommodate users of all head shapes and sizes

Technical Specifications

Operating Conditions

Operating Temperature	0 to 40 ℃
Ambient Air Pressure	760 to 1060 hPa
Relative Humidity	< 90%

Dimensions

Dimensions (L x W x H)	50 cm x 26 cm x 52 cm
Weight	~ 20 kg

Light Source Specifications

Light Source Type	LED
LED Current	200-1200 mA
Intensity Range	100 to 250 Microwatts
Wavelength	450 nm (Blue)
SL stimuli Exposure Time	1 second per trial

Electric Rating

Power Source	Voltage: 100-240 V Frequency: 50-60 Hz
Power Input	45 VA

*SLOPE's proprietary optical system uses a LED based light source with intensity reaching no more than 250 microwatts making prolonged and repeated usage save for all types of users.

Features

First Adoption of Quantum Technology in Vision Sciences

SLOPE utilizes multi-disciplinary concepts such as orbital angular momentum states (OAM), circular polarization and orientation of retinal photoreceptor axons which forms the basis of its novel core technology.

Diagnostic Tool for Degenerative Eye Diseases

SLOPE is a portable diagnostic and screening device for various degenerative eye diseases such as age-related macular degeneration (AMD), myopic macular degeneration (MMD) and type-2 macular telangiectasia (MacTel). Considering the compact size and easy-to-use nature of the optical device, it can be used in variety of settings including clinics, hospitals, elderly care home, etc.

Evidence-Based Practice and Clinical Data Support

Our researchers continue to conduct research on our technology and clinical trials with collaboration with Polytechnic University of Hong Kong and University of Waterloo in Canada, the findings of which are published in some renowned international journals such as Proceedings of the National Academy of Sciences (PNAS).

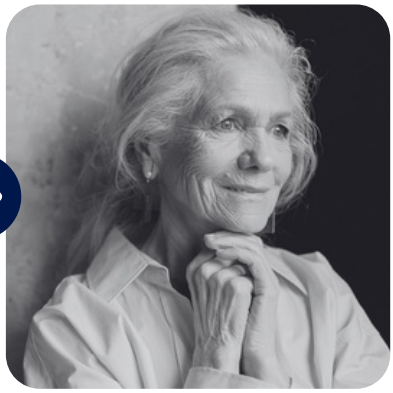
Quick and reliable psychophysical task with high accuracy

This device can be used to conduct a quick psychophysical test for retinal screening which lasts no more than 5 minutes. During the test, a low intensity structured light (SL) stimuli is directed into the user's retina which induces an entoptic pattern.

Application of diagnosis using SLOPE

1. Early screening of eye disease using SLOPE

2. Relevant early prevention and treatment administrated



3. Preserve Good Vision for Quality of Life in Later Years

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About Us

Composed of top talents and collaboration, Entoptica aims to develop ophthalmic devices using the advantages of quantum technology. We introduce novel techniques for diagnosis and treatment of various eye diseases and collaborate with local and international institutions to research and explore new avenues in vision sciences to save vision.

Awards and Recognitions

Partners and Collaborators

For more information, please email us at entopticalimited@gmail.com
or scan the QR to visit our website www.entoptica.co

Entoptica Limited
Room 1405, 135 Bonham Strand Trade Centre, 135 Bonham Strand, Sheung Wan, Hong Kong