DAYLIGHT ACADEMY

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# **Poster** abstracts

Poster I

# Modifying exposure to daylight through behaviour in older adults

**Authors**

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**Abstract**

Exposure to the light-dark cycle given by daylight regulates our circadian rhythms, sleep, mood, and cognitive function. Many older adults experience insufficient light exposure, which can negatively impact health and well-being. Singapore's hot and humid climate coupled with the high-density urban environments, compact living spaces and indoor lifestyles may further limit access to daylight. Conventional approaches to increasing exposure to bright light often rely on architectural modifications or supplemental electric light. Here, we explore a novel and innovative behaviour-driven approach for optimizing exposure to light, including daylight.

We developed a novel mobile health intervention, LightUP, designed to empower older adults to optimize their light exposure. The approach supports individuals in modifying their daily routines to increase daylight exposure. Co-designed with older adults and community service providers, the app integrates personal light exposure monitoring from wearable light loggers, personalised goal-setting, adaptive feedback, and educational engagement to facilitate sustained behaviour change.

Our digital intervention will be tested in a randomized, double-blind crossover trial to evaluate its effectiveness in improving light exposure as well as sleep, mood, and cognitive outcomes. Participants will wear a light-logging device synchronised with the app to provide personal light exposure feedback.

This approach will establish a scalable digital health intervention framework that can be widely deployed in aging populations, particularly in urbanized settings. The findings will inform the development of innovative, technology-driven strategies for preventative health, offering an accessible solution to address inadequate (day)light exposure.

**Keywords:** light exposure, behaviour, mobile health (mHealth), older adults, circadian rhythms

Poster II

# Sunlight-powered fungicide conjugates: Fighting fungal resistance

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**Abstract**

The widespread use of pesticides over the past decades has come at an enormous environmental cost due to bioaccumulation, unwanted toxicity and pest resistance. There is an urgent need for newer, out-of-the-box approaches to pest control. In this work, we present a novel design of sunlight-active fungicides. The proposed idea is based on the covalent binding of a naturally occurring photodynamic sensitiser, such as phenalenone, to the molecular structure of a commercial fungicide. Two synergistic biocidal modes of action were observed for these compounds: the biochemical toxicity and the photodynamic effect under light. We could demonstrate that a conjugate compound of azoxystrobin and phenalenone was able to efficiently kill under light two resistant strains of Botrytis cinerea, a fungus typically affecting strawberry plants and wine grapes, which were immune to the original fungicide.

**Keywords:** pest resistance, fungicides, photodynamic effect, phenalenone, azoxystrobin

Poster III

# Outdoor Daylight Exposure for Better Sleep and Mood: A Cross-Sectional Study

**Authors**

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**Abstract**

Introduction: Light/dark is the main external cue to synchronize the biological clock. Even though the physical differences between daylight and electric light are well-known, a better understanding of how daylight exposure affects human biology and behavior in real-life conditions is still needed. In this study, we characterized outdoor daylight exposure during the COVID-19 pandemic in Brazil and evaluated its association with depressive symptoms and well-being. We hypothesized that higher frequency and duration of daylight exposure, especially in the morning, are associated with a lower prevalence of sleep problems and of depressive symptoms, and with higher well-being.

Method: A cross-sectional study was conducted between July and November 2020, including Portuguese-speaking participants over 18 years old who answered an online survey. We used regression models to evaluate the association between outdoor daylight exposure (frequency, duration, and shift) and sleep problems, chronotype estimated by mid-sleep time on free days (MSF), and scores of Patient Health Questionnaire (PHQ-9) and of Well-Being Index (WHO-5), controlling for age and sex. We considered statistically significant results with $p<0.05$.

Results: We included 1,095 participants (82% women; 88% 18-49 years old). The mean MSF was 5.17 (+ 1.71), and individuals with earlier chronotypes had a higher frequency of daylight exposure, particularly in the morning. Daylight exposure everyday (OR 0.43; 95% CI: 0.27-0.69), for more than 1h (OR 0.57; 95% CI: 0.35-0.92) and in the morning (OR 0.37; 95% CI: 0.23-0.61) were protective factors for sleep problems in reference to lack of daylight exposure. Higher WHO-5 and lower PHQ-9 scores were observed when daylight exposure occurred in more than half of the days (mean ±sd: 10.2 ±4.9; 11.3 ±6.3) and for more than half an hour (10.1 ±5.0; 11.8 ±6.4) compared with those without exposure (7.7 ±4.0; 14.4 ±5.9).

Conclusion: Associations of higher frequency, longer duration, and timing (morning) of outdoor daylight exposure with less depressive symptoms (PHQ-9) and more well-being (WHO-5) were found. Our results are consistent with the literature, highlighting the vital role of daylight exposure in maintaining or improving human health.

**Keywords:** chronobiology, mental health, depressive symptoms, well-being, natural light

Poster IV

# Time spent outdoors in daylight and depression risk after 2.5 years: Insights from the Lifelines cohort

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**Abstract**

Background: Daylight exposure is crucial to synchronize our circadian system, which is essential for physical and mental health. This study prospectively examined the association between time spent outdoors in daylight and depression, including potentially moderating effects of age, sex, and chronotype.

Methods: A prospective, population-based cohort study embedded in Lifelines, in which 70,827 people aged 18-89 years were followed-up for 2.5 years. Time spent outdoors in daylight was assessed with the Munich Chronotype Questionnaire (MCTQ). Major Depressive Episodes were assessed at follow-up with the Mini International Psychiatric Interview (MINI). Generalized Additive Models (GAM) were used to assess the potentially non-linear association, adjusting for relevant confounders. Moderation was tested via interaction terms for age, sex, and chronotype, and if significant, subgroup analyses were performed. If GAM indicated a (close to) linear association, logistic regression was done.

Results: No significant association was found between the amount of hours of daylight exposure and future depression status, nor any interaction with age or sex. However, there was a significant interaction with chronotype, and increased daylight exposure was linearly associated with lower odds of depression 2.5 years later in late chronotype individuals (OR 0.93, 95% CI: 0.87 - 0.99).

Conclusions: Time spent outdoors was not associated with depression after 2.5 years in the whole group, but the odds for late chronotypes were 7% lower for each additional hour of daylight. Tailored daylight exposure recommendations based on chronotype may support mental health. Further studies are needed to explore the role of the timing of daylight exposure.

**Keywords:** Depression; Natural light; Daylight; Chronotype; Circadian Rhythms

Poster V

# Progress in the Nordic Daylight Research Programme: Insights from the Photon Space Study


## Authors

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## Abstract

Light is a fundamental regulator of human physiology, influencing, among other functions, sleep, mood, and cognitive function. Despite its profound impact on health, exposure to natural daylight has significantly diminished in modern societies. The precise mechanisms by which different light conditions shape human biology remain difficult to assess in real-world settings.

The Nordic Daylight Research Facility, known as the *Photon Space*, provides a unique environment for controlled studies on light exposure and its effects. This all-glass, thermally insulated suite, located just 2.3° (257 km) south of the polar circle in Granö, allows for an in-depth investigation of seasonal changes in daylight exposure with minimal artificial light interference.

Building upon our previously presented study protocol and preliminary findings, we now report the study progress and emerging insights from ongoing investigations. In this 2.5-week experimental protocol, participants undergo continuous sleep/activity rhythm and light exposure monitoring using actigraphy. After a one-week baseline period in their home environment, they spend 72 hours in the Photon Space, where multimodal data are collected under morning and evening twilight, daylight, and pre-selected/self-selected artificial lighting conditions. Objective measures include actigraphy, ecological momentary assessments using a wrist-worn diary, pupillometry with eye-tracking, and electroencephalography (EEG), alongside subjective assessments of sleep, mood, and visual performance. The environmental conditions within the Photon Space are monitored using photo-spectrometry and multi-sensor data loggers, capturing illuminance, UV exposure, humidity, and temperature.

Our light exposure tests starting after civil twilight show a clear preference for the self-selected artificial lighting parameters over the recommended lighting level. Our ongoing sleep analyses reveal high frequency EEG power and cortical arousals in early morning sleep, which correlate with the occurrence of increasing natural light intensity. This could be a sign of sensorimotor processes to determine the termination of sleep. These tentative findings highlight the importance of accounting for locally-bound variations in daylight exposure when designing lighting strategies for Nordic habitats with prolonged twilight phases. The Nordic Daylight Research Programme continues to bridge the gaps in our understanding of daylight's role in human physiology, with implications for architecture, lighting design, and public health policies in high-latitude regions.



**Keywords:** Daylight, Twilight, Photoperiod, Sleep, Lighting

Poster VI

# Environmental calibration of perceived white


## Authors

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## Abstract

It has been proposed that perceived white is calibrated to the average chromaticity of our 'visual diet'. We compare achromatic settings for participants in Norway living above (Tromsø, N = 165) or below (Oslo, N = 158) the Arctic Circle and across seasons. To capture the local visual diet participants wore colour-calibrated head-mounted cameras and wearable spectrophotometers as they went about daily life, and we also captured hyperspectral images.

We find that perceived white is warmer (higher L/(L+M) and lower S/(L+M)) for observers living in Oslo compared to Tromsø, but did not vary with season. Perceived white did not correspond to the average chromaticity of people's visual diet. Rather, the chromaticity of perceived white corresponded best to the brightest parts of people's visual diet (e.g., clouds). However, differences in perceived white at the two latitudes did not strongly correspond to differences in the chromaticity of the brightest parts of the two visual diets. In order to explore the effects of visual environment in early life, we also investigate how perceived white varies with latitude and season of birth for participants living in Tromsø. Consistent with the effects of current latitude, perceived white was lower in S/(L+M) (yellower) for adults born below the Arctic Circle than adults born above.

Combined, the findings could suggest that the chromaticity of perceived white is calibrated, both during the development of trichromatic color vision and throughout life, to the chromaticity of the brightest elements of a scene or the natural illumination.



**Keywords:** visual perception, colour perception, visual diet, wearable spectrophotometer, visual development.

Poster VII

# Medicinal plants combined with Photodynamic Therapy for wound-healing: A novel treatment strategy?

**Authors**

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**Abstract**

Chronic and unhealed wounds are serious public health problems, which are an economic burden and result in psychological pressure to patients (Wilkinson and Hardman, 2020). Nearly six to eight million people suffer from chronic wounds worldwide (Shukla et al., 2005, Sen, 2019). The main treatments for chronic wounds can be divided into two main parts, surgical debridement and growth factor medicines (Powers et al., 2016). When the skin is injured, the process of wound healing will trigger a well-orchestrated and complex cascade of cellular and biochemical events aimed at repairing the damaged tissues (Wilkinson and Hardman, 2020). The wound-healing process can be divided into four distinct but overlapping phases: hemostasis, inflammation, proliferation, and remodelling. Medicinal plants and natural products are a key resource in many economically less developed countries and can accelerate any phase as wound-healing agents (Heinrich et al., 2021). Photodynamic therapy (PDT) is a treatment that uses light and a photosensitiser to promote wound healing. It can be used to treat a variety of wounds, including acute, chronic, and ageing wounds. The combinations of these two approaches, i.e., combining PDT with wound healing properties of plant extracts (including the phytochemicals/natural products with light-activated potentials in these extracts) may offer a new way to improve wound treatment. Specifically, this work aims to identify and determine the potential of plant species traditionally used for wound healing, particularly in Mesoamerica and Traditional Chinese Medicine (TCM), which includes *Dorstenia contrajerva* L., *Mesosphaerum pectinatum* (L.) Kuntze (syn. *Hyptis pectinata*) and *Senna reticulata* (Willd.) H.S. Irwin & Barneby (syn. *Cassia reticulata, Cassia alata*), *Lobelia chinesis* Lour and *Cnidium monnieri* (L.) Cusson. The phytochemical analysis (i.e., UV/vis spectrometry and HPTLC analysis) and In vitro studies (i.e., cytotoxicity assays and scratch assays) on different extracts of different parts of these plant species were conducted. Our findings showed that the hexane and acetone extracts exhibit strong and noteworthy, respectively, absorbance peaks in the visible light wavelength (400-700 nm). The cytotoxicity assay showed that acetone extracts of *D. contrajerva* leaves exhibit photo-cytotoxicity at concentrations higher than 25 ug/mL, the ethyl acetate extracts of *S. reticulata* leaves exhibit photo-cytotoxicity at concentrations higher than 6.25 ug/mL) and the ethyl acetate extract of *M. pectinatum* leaves significantly exhibits photo-cytotoxicity at a concentration higher than 50 ug/mL. The scratch assay showed that some of the TCM extracts improved cellular migration, contributing to wound closure, and this activity is also influenced by light exposure. This work is ongoing; however, the studies so far show that the selected species may have the potential for further development and wound-healing properties in combination with PDT.

**Keywords:** Wound healing, Photodynamic Therapy, Traditional Chinese Medicine, Mesoamerica, medicinal plants

Poster VIII

# Effects of dynamics of sunlight patterns from nature on experience and stress recovery

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**Abstract**
The unique characteristics of daylight, including its spatial, spectral, and temporal qualities, make it highly preferred and emotionally appealing to humans. Our previous systematic review, conducted on the restorative effects of daylight, revealed that direct sunlight presence (provided there is no visual discomfort) in the room appears to be the leading daylight component inducing restorative effects. This review also revealed important research gaps, including the lack of research regarding the dynamic character of sunlight patterns and its effects on human restoration and experience in indoor environments. In order to address this gap, we tested the effects of the temporal and spatial distribution of dynamic sunlight patterns on restoration, restorative potential, and visual appraisals in office environments in three consecutive experiments.

The first study (N = 73, between-subjects) revealed that dynamic dappled light patterns projected on the wall of a mock-up office room led to lower physiological stress (marked by lower skin conductance levels) during a stressor task compared to a control condition, suggesting a stress-dampening effect of the dynamic dappled light. In order to test if this effect was due to the "natural" dynamics of dappled light or if any dynamic stimuli would have induced similar effects, in a second study (N = 69, between subjects), the effect of movement type (natural vs. non-natural movement) of light patterns projected on the wall was tested on stress recovery. The natural movement was extracted from a video of real dappled light and translated into the movement of geometric circles, creating an abstract dynamic light pattern with natural movement. The non-natural movement condition was created by manipulating the extracted movement parameters. Results showed no effect of movement of the light pattern on stress recovery.

However, these null findings could be due to oversimplification of dappled light patterns by only extracting their movement, as both the natural and non-natural movement conditions were rated very low in association with nature. Thus, in our third study (N = 59, within-subjects), with a 2x2x2x2 full factorial design (Figure 1), we included manipulations of not only movement (natural vs non-natural), but also of spatial characteristics, including shape (natural vs non-natural), edge characteristics (soft vs sharp edges), and luminance distribution (constant level of luminance or luminance with gradient). The effects of these characteristics were tested on the perceived restoration potential of a work environment in an online study. The results show that all four factors influenced the perceived restoration potential. Movement had the largest effect, followed by edge characteristics, luminance distribution, and shape. Soft edges compared to sharp edges, diverse luminance distribution compared to single luminance levels, and natural shapes compared to non-natural ones led to higher perceived restoration potential. Furthermore, all factors work additively, meaning that the more natural elements we add, the more natural and relaxing the pattern is perceived, showing the importance of both spatial and temporal characteristics of dappled light patterns for restorative experience.

Given the growing recognition of the impact of dynamics in indoor environments on human experience (e.g., recent studies focusing on dynamics in the context of view out), our research investigates how the natural dynamics of sunlight patterns indoors influence

occupants, focusing on their restorative benefits and the underlying mechanisms behind these effects. Our findings reveal that exposure to dynamic dappled light patterns can dampen physiological stress, and that both temporal and spatial characteristics of dappled light patterns play a role in this restorative experience. These insights can inform evidence based daylighting strategies that promote restoration and overall well-being in indoor spaces.

**Keywords:** restorative effects, dynamic sunlight patterns, dappled light

Poster IX

# Design for Daylight: Improving Circadian Rhythm Health of Older Adults in Institutional Care Settings

**Authors**

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**Abstract**

Background: Sleep and circadian rhythm dysregulation are frequent problems affecting older adults in institutional settings. Lack of circadian synchronization affects important physical and mental functions and can lead to negative outcomes. Daytime light interventions, with proper dose, time and intensity, have the potential to restore natural circadian rhythm, which in combination with day/night activity cycle regulation may lead to improvement in sleep patterns. Harnessing daylight as a sustainable source for resynchronization of the circadian rhythm should be considered as a critical step in optimizing environments, promoting health and well-being in institutionalized populations. Emerging research provides foundational evidence for how lighting may be instrumentalized in older adult institutional care settings to improve patient subjective and objective sleep outcomes with the potential to influence patient overall health.

Objective: The present poster aims to translate the findings of a systematic review evaluating the impact of light interventions on sleep and circadian rhythm for institutionalized older adults into applicable strategies for practice. The main objective of this analysis is to offer practical information on optimizing light interventions for older adults in institutionalized settings aiming at improving circadian rhythms.

Methods: In Phase I, a systematic review was conducted that evaluated non-pharmacological interventions to improve sleep for residents in long-term care facilities. Five databases (MEDLINE, Embase, CINAHL, Scopus, and Cochrane Library) were utilized for this systematic review to search for experimental and quasi-experimental studies where nighttime sleep was a primary outcome. In Phase II, lighting and daylight interventions were extracted, evaluated for effectiveness, synthesized, and summarized. Phase III describes what implications for practice may be gathered from the existing body of evidence.

Results: The evidence confirms that there are both subjective and objective circadian rhythm health benefits to increased daytime light exposure. However, findings indicate lighting's impact on sleep outcomes varies depending on light source (artificial or natural), brightness, patient population, exposure time and exposure duration. Notable sleep outcomes influenced by daytime lighting include sleep duration, nighttime awakenings, sleep efficiency, sleep latency, and perceived sleep quality. From all interventions, the use of morning bright light exposure (> 6,000 lux) for over 30 minutes had the most support based on the existing literature.

Implications: Regular daytime light exposure to older adults in institutionalized settings may help regulate circadian rhythms and improve sleep, which may lead to better overall

health outcomes. Bright light therapy research shows it to be a suitable therapeutic replacement for daylight on sleep outcomes when natural light is unavailable. Future research may help explore the implementation and address potential challenges or adverse effects associated with this intervention in institutional care settings.

**Keywords:** health, circadian rhythm, sleep, older adults, daylight

Poster X

# A cross-validation analysis comparing novel wearable light loggers upon daylight exposure: focus on illuminance, melanopic EDI, and CCT

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**Abstract**

Background & Objective: To study the impact of different wavelengths of visible light on our health and well-being, researchers were long bound to controlled laboratory settings and using exclusively handheld spectrometer devices. Recent advances in wearable light logger technology allow researchers to conduct research in real-world environments and capture people's "spectral diets" in everyday life. However, assessing the reliability of these devices is crucial for ensuring accurate and meaningful findings. This study aimed to systematically cross-validate the performance of wearable light loggers against a gold-standard spectroradiometer under semi-controlled conditions. Specifically, we sought to determine whether these devices systematically over- or underestimate illuminance, correlated colour temperature (CCT), and melanopic equivalent daylight illuminance (EDI), and to quantify the variability in any observed differences.

Methods: Three wearable light loggers (*ActLumus*, Condor Instruments; *Lido*, HSLU; and *OcuWEAR 1.0*, Ocutune ApS) and an advanced spectroradiometer (*CSS-45*, Gigahertz Optik GmbH) were placed in a custom-designed testbed for 7 hours under predominantly cloudy daylight conditions on a snowy winter day in January in Aachen (Germany). The sensor placement ensured direct exposure to the outdoor environment, with no intervening window glass or other obstructions affecting light transmission. All devices were configured to sample at 0.1 Hz, and the measurement agreement was evaluated using Bland–Altman analysis by studying bias (average difference) and limits of agreement (random fluctuation) between each wearable light logger and the *CSS-45*.

Results: Lido tended to underestimate illuminance and melanopic EDI slightly, while *OcuWEAR* 1.0 overestimated these metrics but underestimated CCT. *ActLumus* exhibited a relatively small bias but showed considerable variability, primarily due to overestimating both photopic and EDI values at higher daylight intensities of a blue-sky afternoon.

Conclusion: This study provides essential insights into the reliability of novel wearable light logger technologies with spectral measurement capacities, supporting more accurate data collection in lighting design, health-focused illumination research, and environmental assessments. Whether the limits of agreement detected here are acceptable for field study purposes remains debatable. The results underscore the need for proper device selection in applications where precise light measurements are critical.

**Keywords:** Photobiological responses; human-centric lighting; spectral analysis; lighting quality metrics

Poster XI

# Optimizing Daylight for Circadian Health through Luminescent Light Shelves: A Spectral Simulation Approach

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**Abstract**
Daylight has a significant impact on various aspects of human activities, including energy consumption, visual performance, and overall health and well-being. One of the most critical biological functions influenced by daylight is circadian rhythms, that regulate hormonal, behavioural, and metabolic cycles throughout the day. Circadian rhythms are set non-visual receptors in the eyes. These are cued by light between 460 and 490 nm wavelengths. These wavelengths which stimulate melanopsin, a photopigment found in intrinsically photosensitive retinal ganglion cells (ipRGCs). Therefore, exposure to light rich in shorter, bluer wavelengths from early morning to early evening can synchronize the circadian rhythm, leading to improved sleep quality and promoting non-visual health benefits. In buildings, innovative light shelf designs may be able to provide daylight daily variation that enhance occupant circadian health in spaces deeper from windows and on overcast days. A particular concept is considered that uses optical solar energy concentration and luminescent devices to (i) concentrate incident solar energy, (ii) project it deeper into the building and (iii) modify its spectral wavelength distribution. The output of such systems varies over a day with natural variations of solar radiation intensity, sky conditions and apparent solar motion. The objective is to optimize the output from the new light-shelf concept to increase proportions of light with wavelengths that stimulate the circadian system at appropriate times over each day, deeper from windows particularly on overcast days.

To evaluate the feasibility and effectiveness of this approach, a spectral daylight simulation tool is required to model and predict how the system will perform in real-world conditions. Unlike traditional lighting tools that provide information on illuminance and luminance, spectral simulation tools predict variations and alterations in the spectral properties of light. These attributes are essential for assessing both visual and non-visual effects. Simulation tools available to model non-image-forming effects of interior lighting have limitations. As examples, (i) tools may not accurately emulate real-world variations in sky conditions, and glazing and surface properties; (ii) use of simplified geometrical models and limited sky conditions, such as clear or overcast skies, restricts generalizability of results, making it difficult to capture dynamic and diverse interior lighting conditions and (iii) it may not be possible to adequately model complex daylighting systems. An evaluation of available spectral simulation tools seeks to determine their suitability, reliability and accuracy for modelling complex light-shelves, encompassing (i) different seasonal and sky conditions, (ii) capability to integrate real-time weather data and (iii) ability to refine material and glazing property specifications to represent actual indoor environments. The simulation tools selected need to capture the complex interplay between daylight, complex light-shelves, and circadian health. Selected tools will be compared with experimental observations. The validated simulation tool will be then used to perform detailed parametric analysis.

**Keywords:** Daylight, Spectral Simulation Tools, Circadian Rhythm, Non-Image-Forming (NIF) Effects, Luminescent Light shelf

Poster XII

# Tropical light: Online Toolkit for daylight design in the tropics

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**Abstract**

Designing with natural light in the tropics requires a comprehensive understanding of solar geometry and its impact on both spaces and human well-being. However, traditional teaching methods often fall short, overlooking key tools for analyzing the relationship between daylight, climate, and architecture. The tropics present unique daylighting challenges and opportunities: while abundant solar radiation demands strategies for thermal and visual control, it also offers significant health benefits, particularly for circadian regulation. This study presents Tropical Light, an online toolkit designed to bridge this educational gap by organizing concepts and tools into three categories: People, focusing on how daylight influences perception, comfort, and circadian health; Sun and Climate, examining the role of latitude, altitude, and solar orientation in shaping daylight conditions; and Built Environment, outlining lighting metrics, regulations, and design strategies for optimizing natural light in architecture. The platform aims to enhance architectural education by providing accessible, practical resources that empower users to design comfortable, healthy, and energy-efficient spaces adapted to tropical conditions. By translating research into a digital learning tool, Tropical Light fosters a deeper understanding of daylight's role in the built environment, ultimately transforming design practices in the tropics.

**Keywords:** Solar Geometry, educational resources, tropical climate, learning process

Poster XIII

# Multi-domain influence of a natural outside view on thermal comfort of autistic people: first results from the SENSEwellbeing project

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**Abstract**
Autism Spectrum Condition (ASC) needs major consideration in the framework of building design. In fact, the number of ASC diagnoses has been rising in recent years, estimated to be close to 2.8% of the overall population. Moreover, ASC is linked to hyper- and hypo-sensitivity to sensory stimuli, affecting indoor environment perception. Additionally, some individuals with ASC may experience synesthesia (crossover of senses), making multi-domain aspects of Indoor Environmental Quality (IEQ) more impactful. Despite this, research on the impact of IEQ on the well-being of autistic occupants is limited. Consequently, guidelines and standards regarding IEQ design for ASC are either absent or not based on systematic comfort studies. The SENSEwellbeing project addresses this gap by examining the indoor well-being of autistic people through a Living Lab Campaign (LLC) and a Field Study (FS). The LLC involved exposing autistic participants and a non-autistic control group to various thermal scenarios (PMVs of -1, 0, and +1), with and without access to a natural view to the outdoors. Initial results show that the visual environment affects autistic individuals differently than non-autistic controls. Without a view, autistic participants reported more discomfort in both colder and warmer conditions and more sources of local discomfort. The presence of a natural view mitigated thermal discomfort of the ASC groups, highlighting the influence of non-visual effects of light and daylight on autistic occupants. These findings suggest the need for tailored and scientific informed IEQ design standards for autistic individuals, emphasizing the role of daylight in improving their indoor well-being.

**Keywords** Autism; IEQ; daylight; view-out; multi-domain