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# Research Interest - Human and Environment

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#### Outline

- Thermal effect
- Vibration effect
- Noise effect
- Light effect
- Others



#### Thermal effect (1/4)

- Absorption of sun radiation by skin
- Determination of absorption coefficient of skin: Experimental design and data operation
- Effect of skin structure on its absorption behavior
- Effect of skin temperature/moisture on its absorption behavior



#### Thermal effect (2/4)

- Heat dissipation of sunlight in tissue
- The mechanism of light energy dissipating into heat
- The characteristic time of heat dissipation in tissue
- The effect of tissue condition, like as temperature, moisture and age on its heat dissipation characteristic time



#### Thermal effect (3/4)

- Human body temperature
- Surface temperature measurement
- Modeling on human body temperature
- Temperature contour of body temperature
- The effect of very cooling or over heating on tissue



#### Thermal effect (4/4)

- Self-control of body temperature
- The mechanism of temperature self-control
- The modeling on the process of mankind fighting against cold
- Why mankind have no powerful biologic cooling function other than sweating?



#### Vibration effect

- Damping behavior of human tissue
- Modeling on shaking of body activated by circumstance
- Effect of vibration circumstance on human flexibility
- Methods to reduce/avoid vibration effect on human behavior



#### Noise effect (1/2)

- Sources of noises around the people in work, pleasure or resting places
- Characteristics of noise that can be detected by human ear or other organs
- Acoustic properties of the human tissues, especially the propagation and damping pattern



#### Noise effect (2/2)

- Effect of noise on human sense other than hearing
- Influence of noise to human memory ability
- Effect of noise on human emotion
- Impact of noises on unpremeditated crimes and suicide...



### Light effect (1/3)

- Distribution pattern of light radiation over the earth surface and its effect on human skin difference
- Basics on visible spectrum of sunlight and human eye's adaptability to sunlight
- Mechanism on sunburn of human tissues



#### Light effect (2/3)

- Difference in the energy characteristics of artificial lighting and sunlight
- Effect of long-term night shift on human behaviors and physical health
- Occupational diseases developed by the lack of sunshine



### Light effect (3/3)

- Requirements on comfortable artificial lighting
- Effect of intensive lighting on human emotion and behavior
- Damage of intensive lighting on human tissues and organs
- Mechanism on light curing technology



#### Others (1/2)

- Coupling effects of thermal, vibration, noise and light circumstance
- Modeling on multi-physics environment
- Human reactions to complex, coupled physical surroundings



### Others (2/2)

- Physical performance of the tissue, organs and body
- Degradation of the human adaptability to environment with the development of technology
- Theoretical prediction on the self-evolution of complex Intelligent systems



#### Research Interest: Human and Environment

## Thanks!

## Journal of Ergonomics Related Journals

- Occupational Medicine & Health
- Forensic Biomechanics
- Rheumatology: Current Research



#### Journal of Ergonomics Related Conferences

- > 4th Dental health Congress Bangalore, India
- ➤ 5th International Conference and Exhibition on Occupational Health & Safety





