

# Temperature of a gold nanoparticle surrounded by a liquid film

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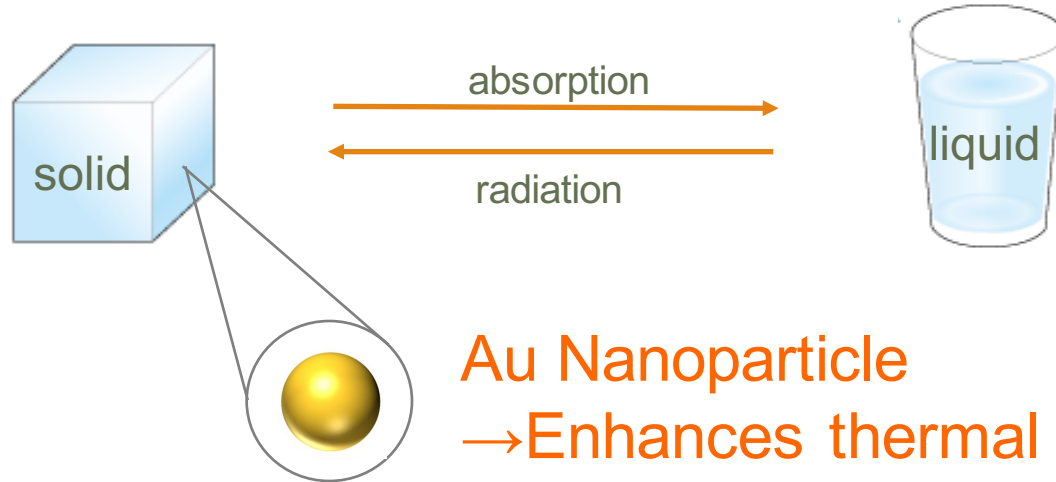
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# Background and Significance

Heat storage – Essential for renewable energy

Phase Change Material (PCM)

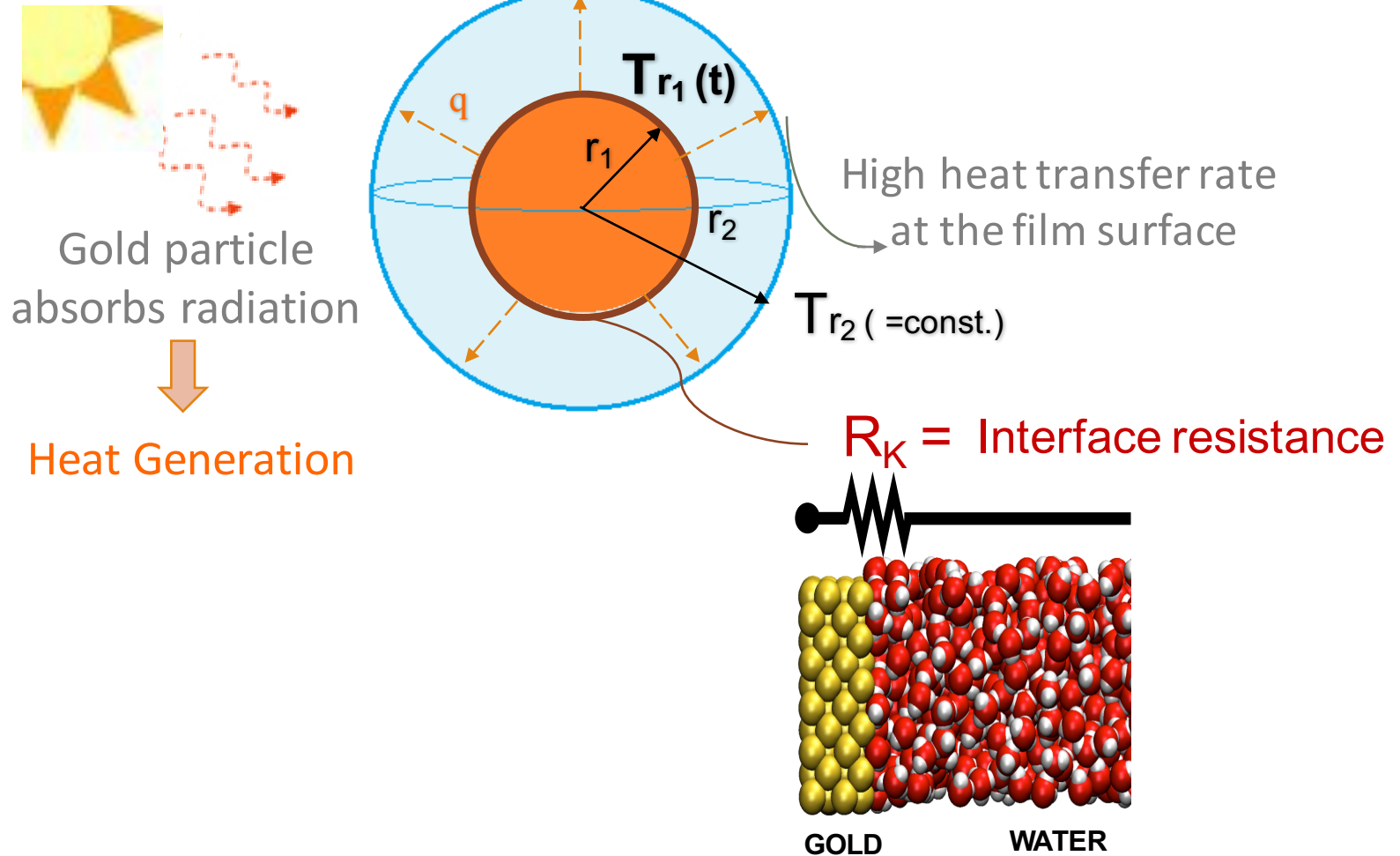


Au Nanoparticle

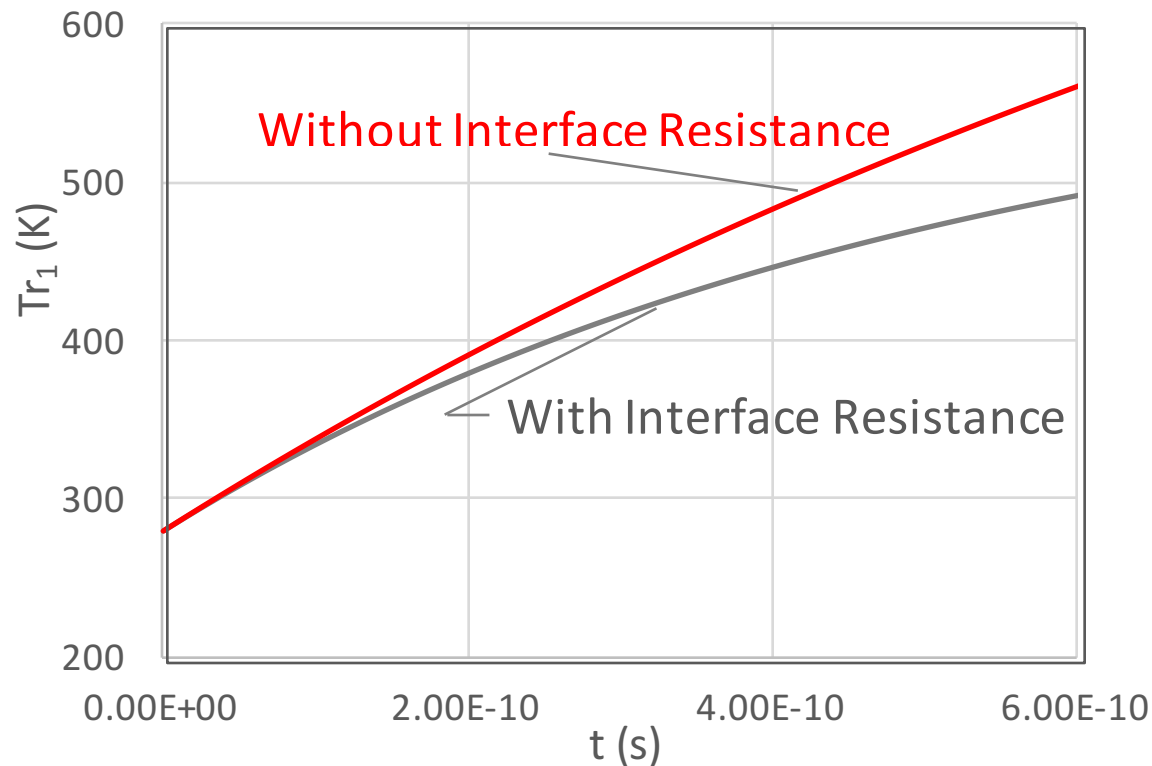
→ Enhances thermal energy storage

Temperature distribution of a nanoparticle is important to determine the optimum particle to use within PCMs

# Model



# Results and future works



$$r_1 = 50 \text{ nm}$$

$$r_2 = 60 \text{ nm}$$

$$q''_{\text{gen}} = 2.5 \times 10^{10} \text{ W / m}^2$$

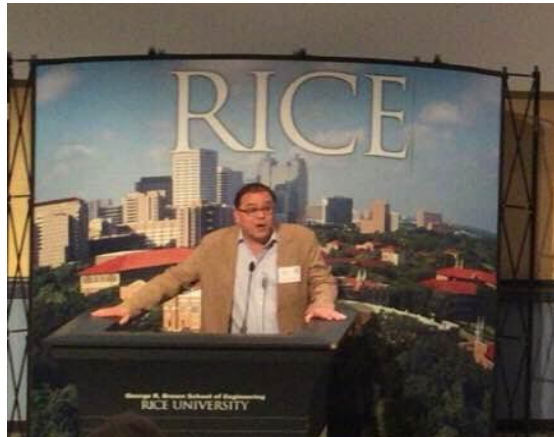
$$T_{r_2} = 280 \text{ K (const)}$$

$$T_{r_1}(t = 0) = 280 \text{ K}$$

## Future work

- Vapor layer between the nanoparticle and the liquid film
- Temperature change of the liquid film surface

# Research in the US vs. Japan



## US

- Graduate students from all over the world
- The value of diverse experience / education
- High presentation skills
- Same communication style for anyone

## Japan

- Not many international students
- The value of consistency in education
- Presentations for the people in the same field
- The use of 敬語 - "Keigo"

# Overall experience in Houston

