



Sharing experience on integrating Knovel interactive engineering solutions as part of R&D and learning in National Chiao Tung University

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Outline

- ☀ About Knovel
- ☀ Proposal Preparation
- ☀ Research/Journal Publication
- ☀ Course Teaching



About Knovel

☀ Previously @ ASU: Google Scholar, ResearchGate

☀ Knovel: introduced by NCTU library

English | 電子資源新訊 | 常見問題 | 離開系統

National Chiao Tung University Library
國立交通大學圖書館 電子資源查詢系統
E-Resources System

圖書館網頁 | 資料庫 | 電子期刊 | 電子書 | 博碩士論文 | 交大學術集成

登入者: alllib

學院核心資料庫瀏覽
學院資料庫瀏覽
學科資料庫瀏覽
資料庫類型瀏覽
試用資料庫資源
資料庫題名排列

熱門搜尋關鍵字
AIRITI LIBRARY 華藝數位資料庫 (華藝線上圖書館) ISI JSTOR 華藝 SDOL SCIENCE DIRECT IEEE SDOL SPRINGER-LINK SCI WEB OF SCIENCE

【資源查詢】
不限欄位 精確檢索 查詢 進階查詢

檢索結果: 所有(1筆)
A to Z瀏覽: K

共 1 筆 每頁筆數 50 GO 第 1 筆

編號	題名	收錄年代/ISSN	使用說明	Web2.0
1	knovel 互動式理工電子書工具資料庫			點閱: 100

本館只採購三個主題:
1) Chemistry and Chemical Engineering
2) Electronic and Semiconductors
3) Mechanics and Mechanical Engineering
Knovel是一個透過以領先的技術資料分析和搜尋工具, 提供以Web為操作介面的工程學應用整合資訊資料庫。Knovel提供使用者透過單一平台檢索及使用來自於超過120個國際型出版商和專業學...more



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Proposal Preparation

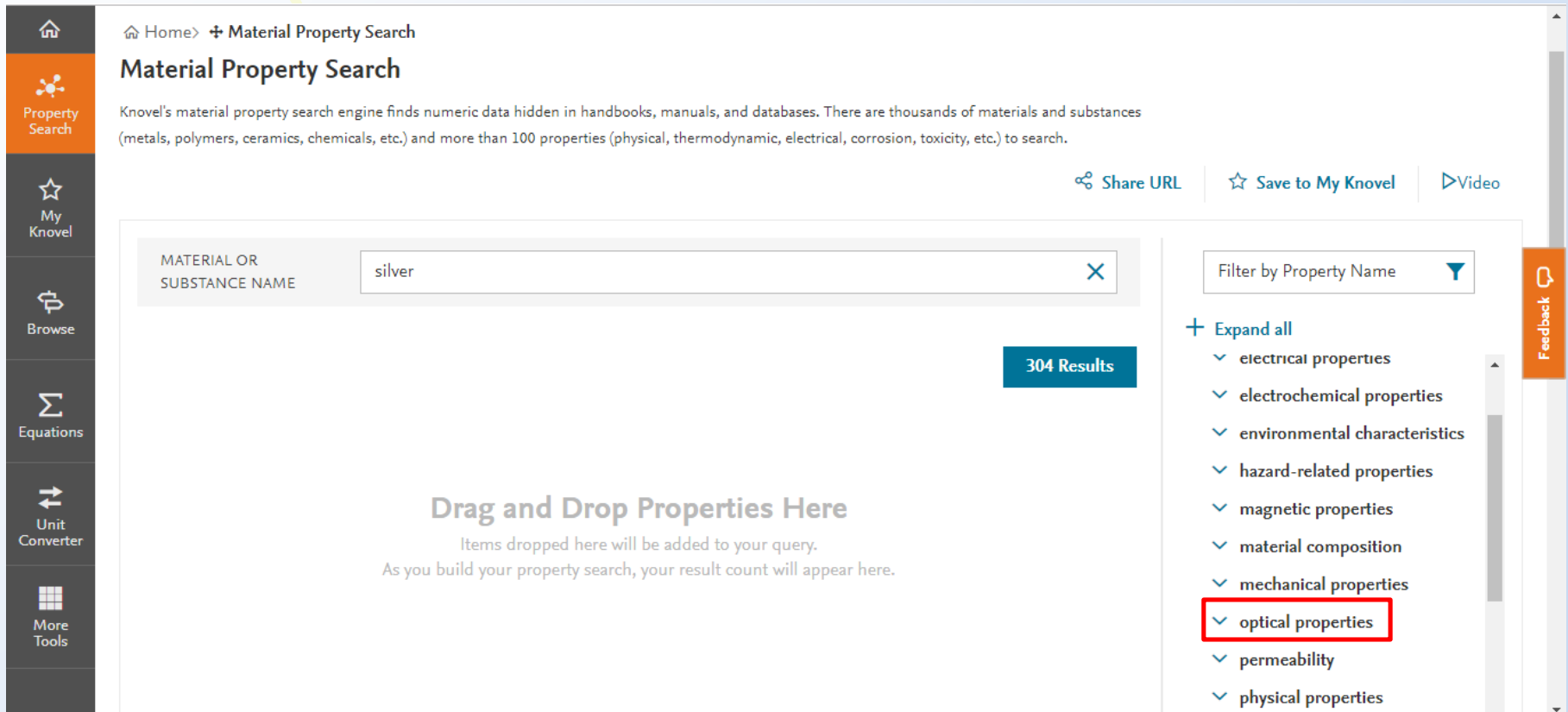
- ☀ Search for relative topics: Chitosan
- 🕒 Not just title search – finding references

The screenshot shows the Knovel search results for 'chitosan'. The search bar contains 'chitosan' and the search button is highlighted. Below the search bar, there are options to 'Include synonyms' and 'Advanced Search'. The results are categorized by type: 'All (90+)', 'Books / Text (90+)', 'Graphs / Tables (5)', and 'Definitions (3)'. The 'Books / Text (90+)' category is highlighted with a red box. Below the categories, there are filters for 'Chapters', 'Conference Proceedings', and 'Regulatory'. The results are sorted by 'Relevancy'. The first result is '[CHAPTER] Chitosan' from the 'Handbook of Textile Processing Chemicals (2013)'. The second result is '[CHAPTER] 5.3.2.1 Chitosan' from 'Biodegradable Thermogels (2019)'. There are buttons for 'Save Result' and 'Explore this page'.

Proposal Preparation

☀ Search for material properties: Silver

🕒 All properties available



The screenshot shows the Knovel Material Property Search interface. The search bar contains the text "silver" and shows "304 Results". The left sidebar contains navigation options: Home, Property Search, My Knovel, Browse, Equations, Unit Converter, and More Tools. The right sidebar shows a list of property categories to filter by, including electrical, electrochemical, environmental, hazard-related, magnetic, material composition, mechanical, optical, permeability, and physical properties. The "optical properties" category is highlighted with a red box. The main content area displays "Material Property Search" and a description of the search engine. Below the search bar, there is a section titled "Drag and Drop Properties Here" with the text "Items dropped here will be added to your query. As you build your property search, your result count will appear here."

Proposal Preparation

- ☀ Search for relative equations: Heat transfer
 - All relevant equations organized – ideas, references

The screenshot displays a software interface for finding equations. On the left, a sidebar contains navigation options: Home, Property Search, My Knowel, Browse, Equations (highlighted), Unit Converter, and More Tools. The main content area is divided into two columns. The left column lists various topics with their respective counts: Mass Transfer (5), Strength of Materials (715), Deformation (54), Thermodynamics (56), Black Body Characterization (3), Convection Characterization (1), Enthalpy (3), Gas Laws (2), Heat Exchanger Design (5), **Heat Transfer (20)**, Heat Flow and Flux (3), Humidity (13), Metals & Metallurgy (20), and Oil & Gas Engineering (77). The 'Heat Transfer' item is highlighted with a red box. The right column provides detailed information for the selected 'Heat Transfer' topic, including a count of 20 and a '+ Add to My Knowel' button. Below this, four sub-sections are listed: 'First Law of Thermodynamics' (1 equation), 'Heat Added to an Evaporator' (1 equation), 'Heat Added to an Expansion Device' (1 equation), and 'Heat Leaving a Compressor' (1 equation). Each sub-section includes a brief description and an 'Example Equations' button with a count of 1.



Proposal Preparation

- ☀ Search for relative equations: Heat transfer
- 🕒 All relevant equations organized – ideas, references

The screenshot shows the Knovel website interface. At the top, there is a search bar with the text "Search Knovel" and a magnifying glass icon. To the right of the search bar are links for "Support Center", "Login", and a user greeting "Welcome National Chiao ...". Below the search bar, the breadcrumb trail reads: "Mechanics & Mechanical Engineering > Thermodynamics > Heat Transfer > Net Radiant Heat Transfer".

The main content area is titled "Knovel Interactive Equations". On the left, there is a sidebar with navigation options: "Property Search", "My Knovel", "Browse", "Equations" (highlighted in orange), and "Unit Converter".

The main content area is divided into two columns. The left column is titled "Net Radiant Heat Transfer" and contains the following text: "Net radiant heat transfer between two surfaces at different temperatures depends on the surfaces' (1) relative size, (2) relative orientation and shape, (3) temperatures, and (4) emissivity and absorptivity." Below this text, it says "Contributed by: Dallstream & Becker" and provides references and citations.

The right column is titled "Equation" and contains the following equation:
$$q_r = \sigma \cdot A_s \cdot \epsilon \cdot (T_1^4 - T_2^4)$$
 Below the equation, there are definitions for the variables: q_r is net radiant heat transfer, Btu/hr; σ is Stefan-Boltzmann constant, Btu/hr·ft²·°Ra⁴; A_s is gray surface area, ft²; ϵ is emissivity; T_1 is gray surface temperature, °Ra; T_2 is surrounding black surface temperature, °Ra. There is an "Open Worksheet" button in the top right corner of the equation section.

At the bottom of the page, there is a footer with the Elsevier logo and text: "Knovel subscription is supported by National Chiao Tung University. Contact your Knovel administrator for additions/suggestions to subscription." Below this, there is copyright information: "Copyright © 2019 Knovel Corporation. All rights reserved." and links for "Terms and conditions", "Privacy Policy", and "Contact Us". There is also a "Sitemap" link. At the very bottom, there is a "View In:" section with links for "Mobile" and "Desktop".



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Research/Journal Publication

- ☀ Sharing properties, equations, references: Refractive index
 - 🕒 Between colleagues, students, etc.

Knovel® Support Center Login Welcome National Chiao ...

Home > Material Property Search > Search for: silver AND refractive index exists

material_or_substance_name: silver AND refractive_index_mf:[* TO *]

Share Search Results Save Search Query Video

< Back to Property Search

All (3) Graphs / Tables (3)

Sort by Relevancy < 1 > Include out of subscription results

[TABLE] Table 2. Inorganic Salt Properties Save Result
From Chemist's Companion - A Handbook of Practical Data, Techniques, and References

table preview - 1 of 1 record View Full Table

salt	melting point, Mp at 1 atm	boiling point, Bp at 1 atm	refractive index, n _D at (temperature in °C)	cryoscopic constant, C
Silver nitrate, AgNO ₃	210	decomposition >212	1.660 (300)	27

Sample of table data is provided above. Click to view complete table and search results.

Research/Journal Publication

- ☀ Add notes & share with others: Maxwell's equation
 - 🕒 Between colleagues, students, etc.

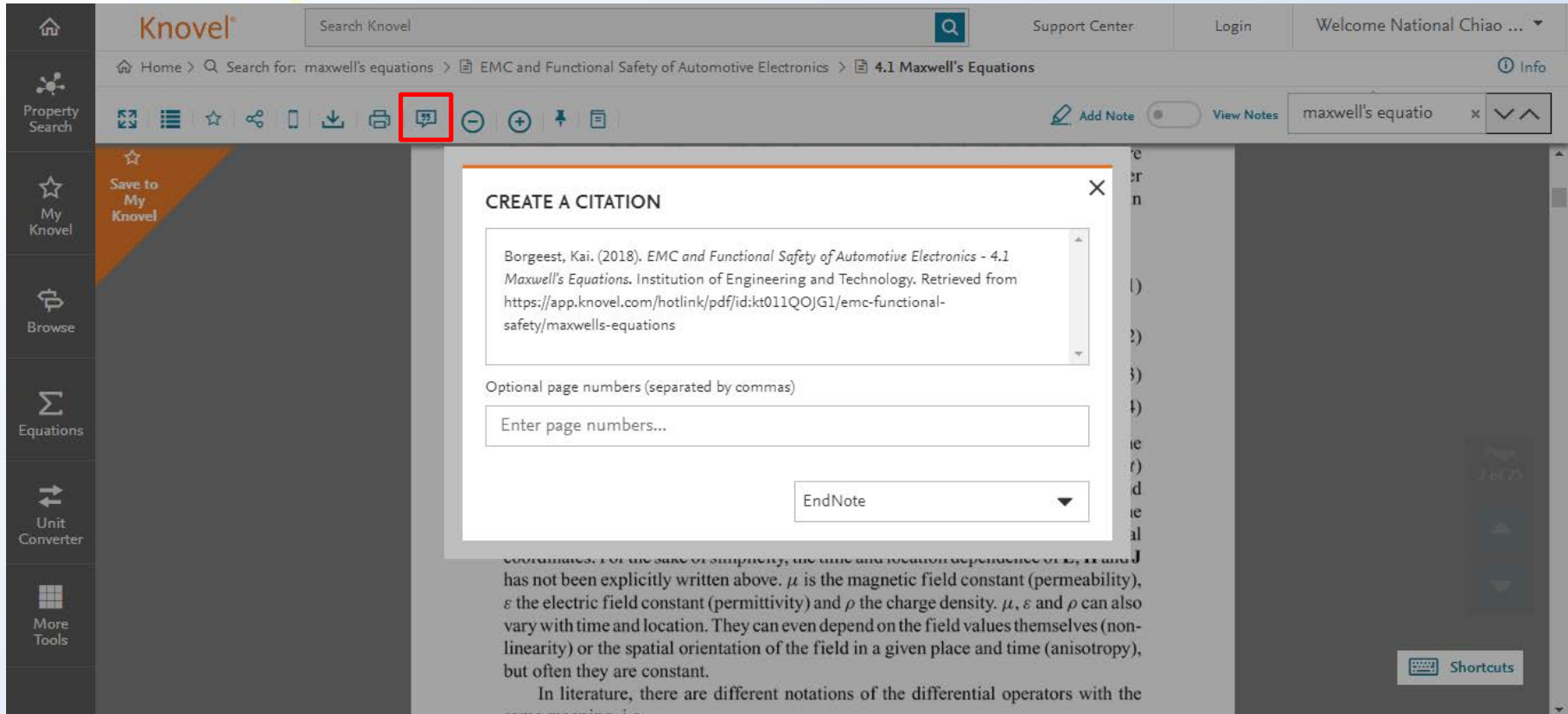
The screenshot shows the Knovel website interface. The top navigation bar includes the Knovel logo, a search bar, and links for Support Center, Login, and a user welcome message. The breadcrumb trail indicates the current page is '4.1 Maxwell's Equations' under 'EMC and Functional Safety of Automotive Electronics'. A toolbar below the breadcrumb contains various icons, with the 'Add Note' icon (a notepad) highlighted by a red box. To the right of the toolbar, a search bar contains the text 'maxwell's equatio'. The main content area displays a text passage about Maxwell's equations, followed by four numbered equations (4.1) through (4.4). The equations are:

$$\text{rot } \mathbf{E} = -\mu \frac{\partial \mathbf{H}}{\partial t} \quad (4.1)$$
$$\text{rot } \mathbf{H} = \mathbf{J} + \varepsilon \frac{\partial \mathbf{E}}{\partial t} \quad (4.2)$$
$$\text{div } \varepsilon \mathbf{E} = \rho \quad (4.3)$$
$$\text{div } \mu \mathbf{H} = 0 \quad (4.4)$$

The text continues to explain the physical meaning of these equations and the variables involved. A sidebar on the left contains navigation options like 'Property Search', 'Save to My Knovel', 'Browse', 'Equations', 'Unit Converter', and 'More Tools'. The bottom right corner of the page has a 'Shortcuts' button.

Research/Journal Publication

- ☀ Export citations: Maxwell's equation
 - Endnote, Mendeley, Bibtex, ProCite, etc.



The screenshot shows the Knovel website interface. The top navigation bar includes the Knovel logo, a search bar, and links for Support Center, Login, and a user welcome message. The breadcrumb trail indicates the current page is '4.1 Maxwell's Equations' within the 'EMC and Functional Safety of Automotive Electronics' section. A toolbar with various icons is visible, with the citation export icon (a document with a plus sign) highlighted by a red box. A 'CREATE A CITATION' dialog box is open, displaying the following citation text: 'Borgeest, Kai. (2018). EMC and Functional Safety of Automotive Electronics - 4.1 Maxwell's Equations. Institution of Engineering and Technology. Retrieved from https://app.knovel.com/hotlink/pdf/id:kt011QOJG1/emc-functional-safety/maxwells-equations'. Below the text, there is a field for 'Optional page numbers (separated by commas)' with the placeholder 'Enter page numbers...'. At the bottom of the dialog, a dropdown menu is set to 'EndNote'. The background of the website shows a technical article with text about electromagnetic field constants and differential operators.

Research/Journal Publication

☀ Unit converter: Thermal conductivity

- 🕒 Enter your own units

Gauge Conversions ▾

INPUT

1

Input Unit: Btu/(h*ft*degF)

OR

Select Input Unit | New Unit

OUTPUT

Significant Digits: - 4 + | Notation: Decimal Sci. 10 Sci. e

1.731

Output Unit: W/(m*K)

OR

Select Output Unit | New Unit

CONVERT

Flip Units | Clear All

Enter compound units using symbols or names:

Numerator | Denominator

EXAMPLE: $\frac{ft^2}{Btu \cdot degF}$

Close | Enter | Save



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Course Teaching

☀ Text books to refer: Heat transfer

The screenshot shows the Knovel search results for 'heat transfer'. The search bar contains 'heat transfer' and the results are filtered to 'Books / Text (1200+)'. The 'Books / Text' filter is highlighted with a red box. The results list includes a book titled '[BOOK] Heat Transfer' by Özişik, M. Necati (2018) and a chapter titled '[CHAPTER] Heat Transfer' from Bretherick's Handbook of Reactive Chemical Hazards (8th Edition) (2017). The page also features a sidebar with navigation options like 'Property Search', 'My Knovel', 'Browse', 'Equations', and 'Unit Converter'. The bottom of the page has a 'Feedback' button and an 'Explore this page' button.



Course Teaching

- ☀ Find resources by fields : Mechanical engineering
- 🕒 Finding supplemental resources

The screenshot shows the Knovel website interface. At the top, there is a search bar and navigation links for 'Support Center', 'Login', and 'Welcome National Chiao ...'. Below the search bar, a breadcrumb trail is highlighted with a red box: 'Home > Browse > Mechanics & Mechanical Engineering > All Topics'. The main heading is 'Mechanics & Mechanical Engineering', with sub-sections for 'References (753)' and 'Equations (1001)'. On the right, there are buttons for 'All Content' and 'My Subscription'. The left sidebar contains navigation icons for 'Property Search', 'My Knovel', 'Browse', 'Equations', 'Unit Converter', and 'More Tools'. The main content area features a 'Filter on book titles' input field and a 'Sorted by A - Z' dropdown. The results list includes:

- TECHNICAL REFERENCES**
- All Topics (753)**
- Energy Efficiency & Reliability (36)
- Fluid Mechanics & Rheology (60)
- Friction & Wear (8)
- Gas & Fluid Transport Systems (116)
- General References (179)
- Heating, Ventilating, Air-Conditioning & Refrigeration (118)
- Machine Design (159)
- Strength of Materials (48)
- Vibration (29)

Highlighted results include:

- 15 Most Common Obstacles to World-Class Reliability - A Roadmap for Managers** by Nyman, Don (2009). Description: Reliability is dependent upon shared understanding and beliefs. Managers at all levels must understand how their decisions and directions often impact adversely the ability of their organization to ac... [More](#)
- 2006 ASHRAE Handbook - Refrigeration (I-P Edition)** (2006). Description: This handbook covers the refrigeration equipment and systems for applications other than human comfort. This book includes information on cooling, freezing, and storing food; industrial applications o... [More](#)
- 2007 ASHRAE Handbook - Heating, Ventilating, and Air-Conditioning Applications (I-P Edition)** (2007).



Course Teaching

☀ Equation solver: Radiant heat transfer

Knovel® Search Knovel Support Center Login Welcome National Chiao ...

Mechanics & Mechanical Engineering > Thermodynamics > Heat Transfer > **Net Radiant Heat Transfer**

Knovel Interactive Equations

Net Radiant Heat Transfer

Net radiant heat transfer between two surfaces at different temperatures depends on the surfaces' (1) relative size, (2) relative orientation and shape, (3) temperatures, and (4) emissivity and absorptivity.

Contributed by: **Dallstream & Becker**
 References: <http://app.knovel.com/web/toc.v/cid:kpASHRAE22>
 Citations: (2009). 2009 ASHRAE Handbook - Fundamentals (I-P Edition). American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

Equation Open Worksheet

$$q_r = \sigma \cdot A_s \cdot \epsilon \cdot \left(T_1^4 - T_2^4 \right)$$

q_r is net radiant heat transfer, Btu/hr
 σ is Stefan-Boltzmann constant, Btu/hr·ft²·°Ra⁴
 A_s is gray surface area, ft²
 ϵ is emissivity
 T_1 is gray surface temperature, °Ra
 T_2 is surrounding black surface temperature, °Ra

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RELX Group™

Course Teaching

☀ Equation solver: Radiant heat transfer

- 🕒 Enter your own equations

Knovel Equation Solver

Worksheet Edit Calculate Insert Units

Net Radiant Heat Tr...

A_g is the gray surface area $A_g := 500 \text{ ft}^2$

ϵ is the emittance of the gray surface $\epsilon := 0.5$

T_1 is the gray surface temperature $T_1 := 773 \text{ }^\circ\text{Ra}$

T_2 is the surrounding black surface temperature $T_2 := 373 \text{ }^\circ\text{Ra}$

Validation:

```
if ( $A_g > 0$ ) ^ ( $\epsilon > 0$ ) ^ ( $\epsilon < 1$ ) ^ ( $T_1 > T_2$ ) ^ ( $\sigma > 0$ )  
  msg := "VALID Solution"  
else  
  msg := "INVALID Solution, T1 > T2 and  $\epsilon$  must lie between 0 and 1, and
```

$$q_r = \sigma \cdot A_g \cdot \epsilon \cdot (T_1^4 - T_2^4)$$

Net radiant heat transfer

$q_r = 1.45$

Worksheet Edit Calculate Insert Units

Net Radiant Heat Tr... Untitled-2

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Thank you!

