Leveraging a Wiki to Enhance Virtual Research Collaboration

Fundamental Aeronautics Program Annual Meeting

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Dr. Jim DiCarlo

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Cleveland Ohio

We are now in an era of unprecedented collaboration potential

The New Web

Web 2.0

Hypernet

The Living Web

The Active Web

What is a Wiki ?

A collection of web pages that anyone can easily edit and add content.

Ward Cunningham is credited for creating the first Wiki engine in 1995, named after the Wiki transport buses in Hawaii.

His vision: Create the simplest online database that would work

What is a Wiki ?

The concept resulted in a very interesting phenomena

Wikipedia - The Poster child of the Wiki world

Wikipedia - The Poster child of the Wiki world

http://en.wikipedia.org/wiki/Main_Page

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The Free Encyclopedia

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Welcome to Wikipedia,

the free encyclopedia that anyone can edit.

2,562,739 articles in English

- Arts
- Biography
- Geography
- History
- Mathematics
- Science
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- Technology
- **All portals**

Overview · Editing · Questions · Help

Contents · Categories · Featured content · A–Z index

Today's featured article

Augustus (63 BC – 14 AD) was the first emperor of the Roman Empire, who ruled from 27 BC until his death in AD 14. The young Octavian was adopted by his great uncle Julius Caesar from whom he inherited the throne in 44 BC. In 43 BC, Octavian joined forces with Mark Antony and Marcus Aemilius Lepidus in a military dictatorship known as the Second Triumvirate. After the demise of the Second Triumvirate, Octavian restored the outward facade of the Roman Republic, with governmental power vested in the Roman Senate and which became known as the Roman Empire. Augustus' control over the majority of Rome's legions established an armed threat that could be used against the Senate, allowing him to coerce the Senate's decisions. The rule of Augustus initiated an era of relative peace known as the *Pax Romana*. Augustus expanded the boundaries of the Roman Empire, secured the Empire's borders with client states, and made

In the news

- Eleven people are killed in a **school shooting** in Kauhajoki, Finland.
- **Edward Natapei** is elected the new Prime Minister of Vanuatu following the 2008 general elections.
- In golf, Team USA defeats Team Europe to win the **37th Ryder Cup Matches**.
- **Thabo Mbeki** *(pictured)*, as requested by the ruling African National Congress, resigns as President of South Africa.
- More than 12,800 children in China are hospitalized due to **adulterated milk products and infant formula**.
- A **truck bomb** detonates outside a hotel in Islamabad, Pakistan, killing at least 53 people and injuring 266 others.
- Lloyds TSB announce a takeover of rival UK bank **HBOS**

Wikipedia - The Poster child of the Wiki world

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Atmospheric reentry

From Wikipedia, the free encyclopedia

(Redirected from Atmospheric entry)

"Reentry" redirects here. For reentry in cardiac medicine, see Reentrant dysrhythmia.

Further information: Re-Entry (Marley Marl album) and Re-Entry (Big Brovaz album)

Atmospheric reentry refers to the movement of human-made or natural objects as they enter the atmosphere of a planet from outer space, in the case of Earth from an altitude above the "edge of space." This article primarily addresses the process of controlled reentry of vehicles which are intended to reach the planetary surface intact, but the topic also includes uncontrolled (or minimally controlled) cases, such as the intentionally or circumstantially occurring, destructive deorbiting of satellites and the falling back to the planet of "space junk" due to orbital decay.

Vehicles that typically undergo this process include ones returning from orbit (spacecraft) and ones on exo-orbital (suborbital) trajectories (ICBM reentry vehicles, some spacecraft.) Typically this process requires special methods to protect against aerodynamic heating. Various advanced technologies have been developed to enable atmospheric reentry and flight at extreme velocities.

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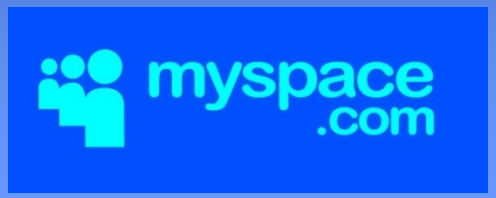
  4.4 Non-axisymmetric shapes
5 Shock layer gas physics
  5.1 Perfect gas model
  5.2 Real (equilibrium) gas model
  5.3 Real (non-equilibrium) gas model
  5.4 Frozen gas model
6 Thermal protection systems
  6.1 Ablative
    6.1.1 SLA-561V
    6.1.2 PICA
    6.1.3 SIRCA

Mars Exploration Rover (MER) aeroshell, artistic rendition.

The Wiki Concept has a broad range of usage



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Time: ending soonest
STAR WARS: Tie Fighter PC Game 1994 in box MS-DOS
$4.99
$8.00 Buy It Now
Time Left: 14m
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$10.49 (2 Bids)
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Star Wars Action Figure Loose
$1.00 (0 Bids)
Time Left: 15m
STAR SPANGLED WAR STORIES #149 ENEMY ACE KUBERT ART
$0.95 (1 Bids)
Time Left: 15m
Star Wars Yoda car bumper window sticker decal 4" x 4"
MINT TPOTF 4" Action figure STAR WARS ASP-7 Droid
$0.99 (0 Bids)

The Wiki Concept has a broad range of usage

Content focus

- hobby, travel, cooking, reference, YouTube

Ease of use Wiki's

- online photo albums, family wiki's, My Space

Process focus – to study and advance a process

- collaboration, project management, education

The Wiki Concept has a broad range of usage

Process focus – to study and advance a process

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Ceramic Matrix Materials Collaboration Project

NASA & OGE– Industry – Academia membership

Secure Login – ITAR Restricted Data

Process focus – to study and advance a process

Members to have full open access to evolving the site

Version Tracking – all edits remain accounted for

How does one create a Wiki ?

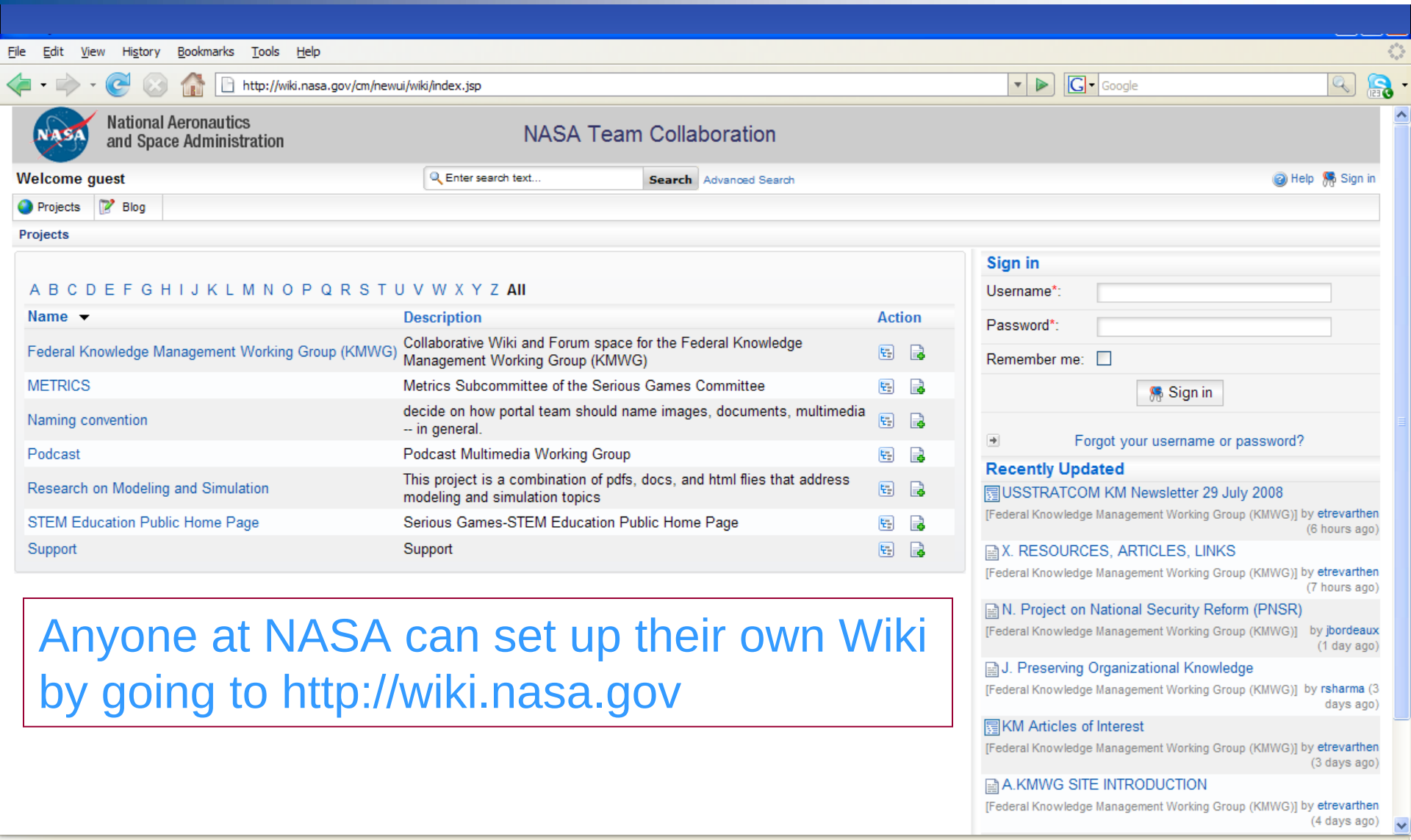
Free Wiki's (similar to Gmail, Yahoo mail)

Wetpaint, Wikidot, Wikia, XWiki, PBwiki, etc

Fee for service Wiki's

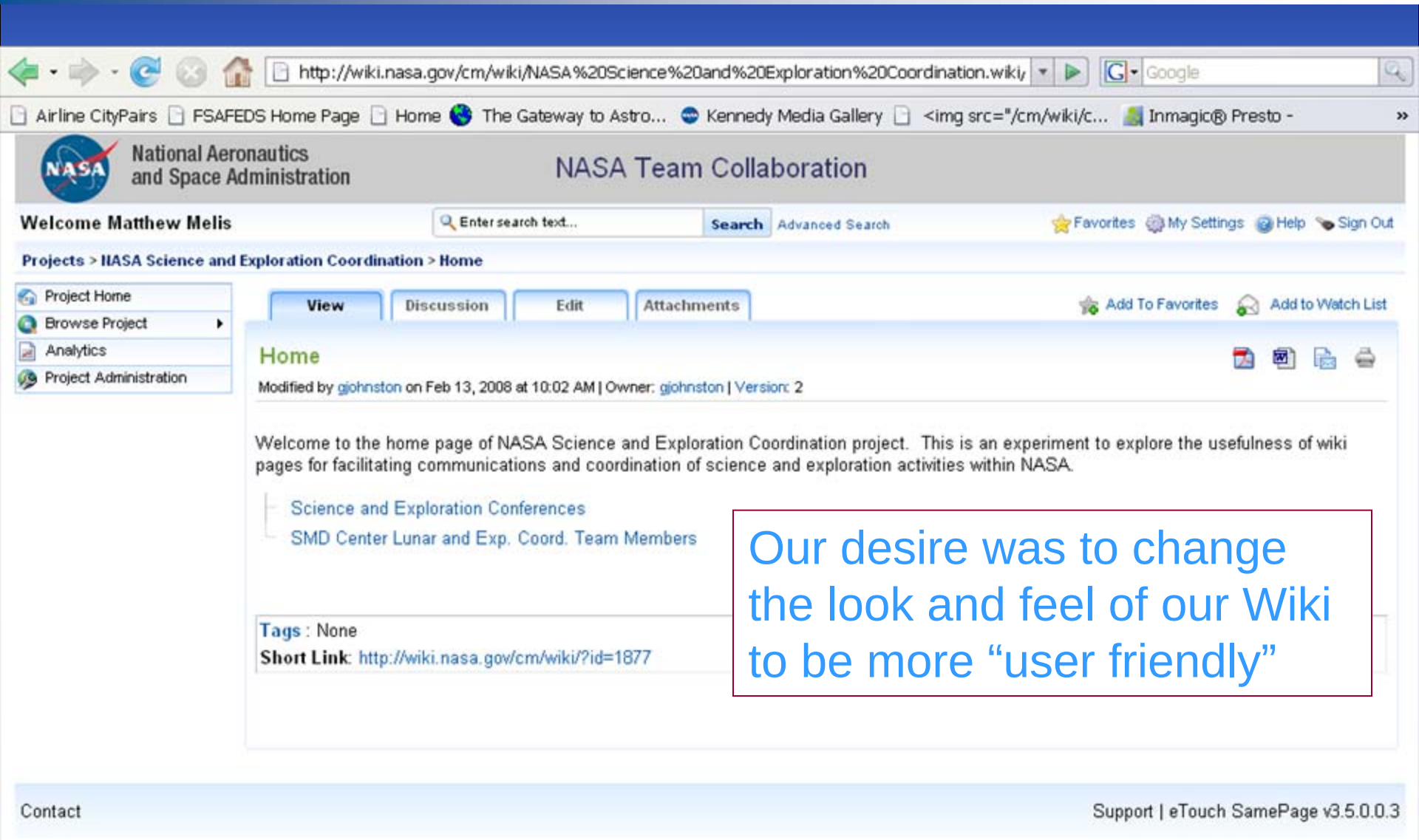
- The CMC Wiki is being developed using the enterprise software, SamePage, from eTouch systems (www.etouch.net). eTouch systems manages NASA's public web portal as well as an internal Wiki project.

Leveraging a Wiki to Enhance Virtual Research Collaboration



Anyone at NASA can set up their own Wiki by going to http://wiki.nasa.gov

Leveraging a Wiki to Enhance Virtual Research Collaboration



Our desire was to change the look and feel of our Wiki to be more “user friendly”

http://cmcwiki.grc.nasa.gov/cm/wiki/Ceramic%20Matrix%20Composite%20Collaboration.wiki/home/home.html

Airline CityPairs | FSAFEDS Home Page | Home | The Gateway to Astro... | Kennedy Media Gallery | <img src="/cm/wiki/c... | Inmagic® Presto - | SSPWEB | LLIMS Events | Gelco Travel Manager ...

Welcome System User

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Project Home | Browse Project | New | Actions | Analytics | Project Administration

Projects > Ceramic Matrix Composite Collaboration > Home

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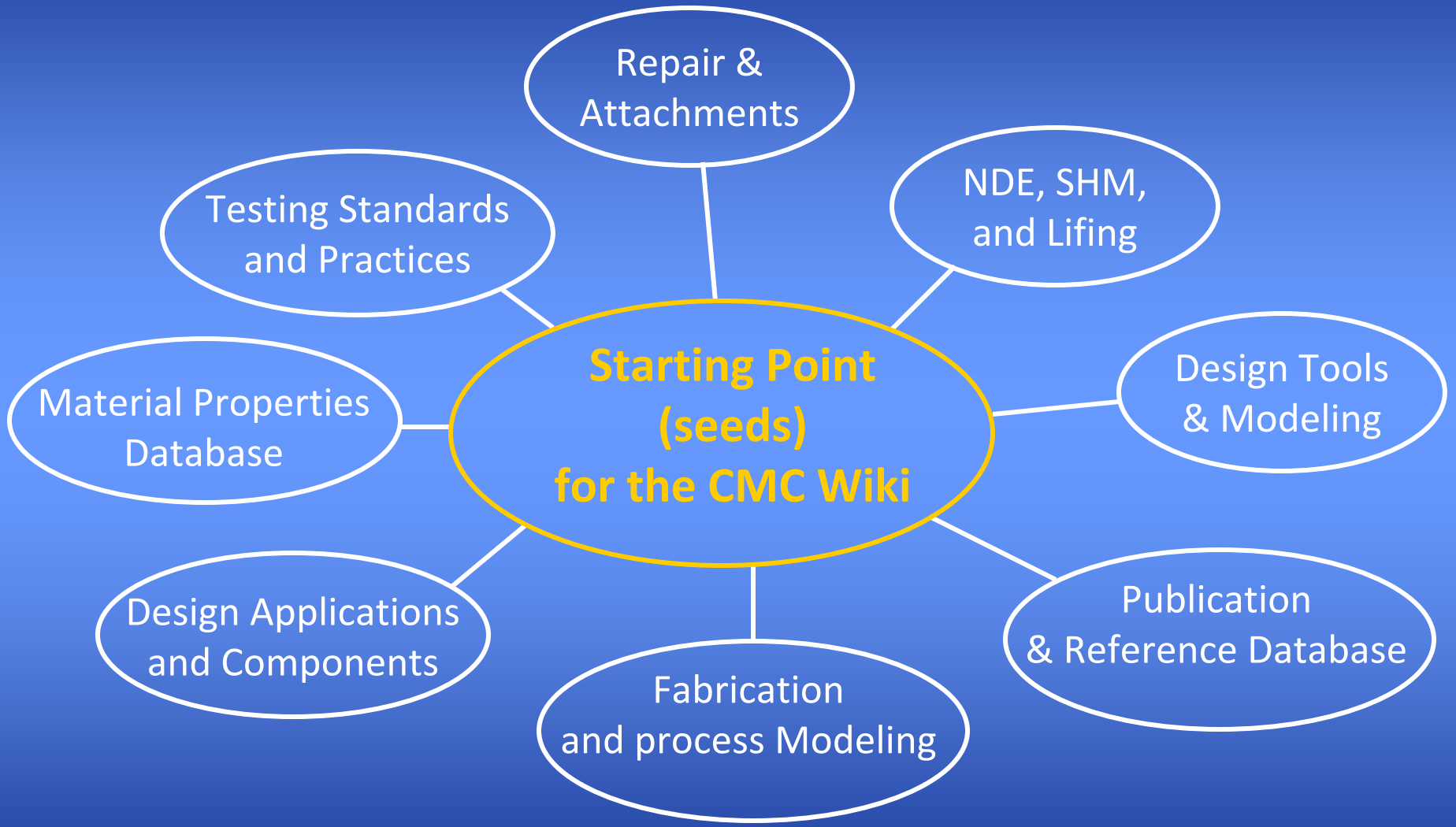

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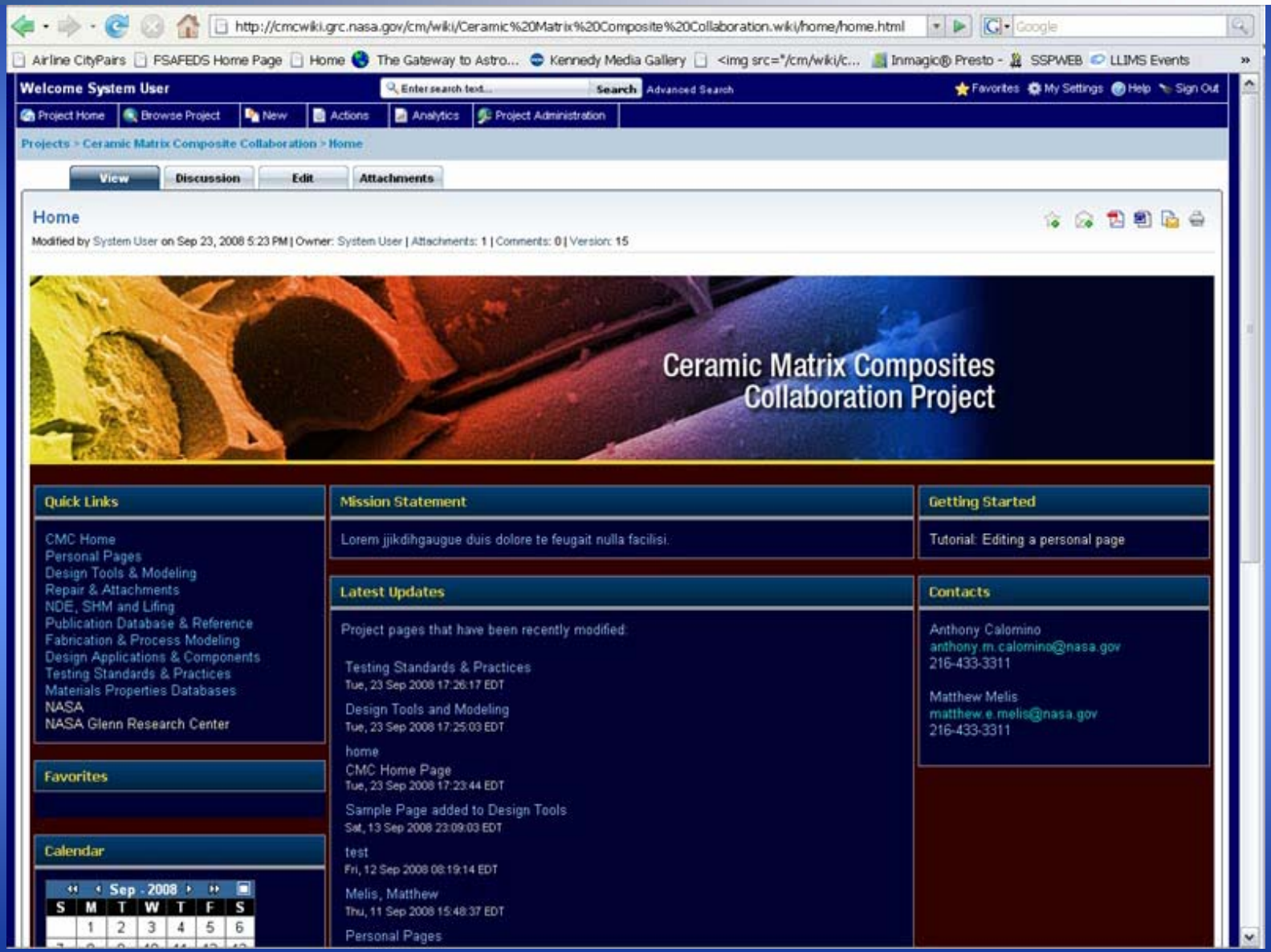

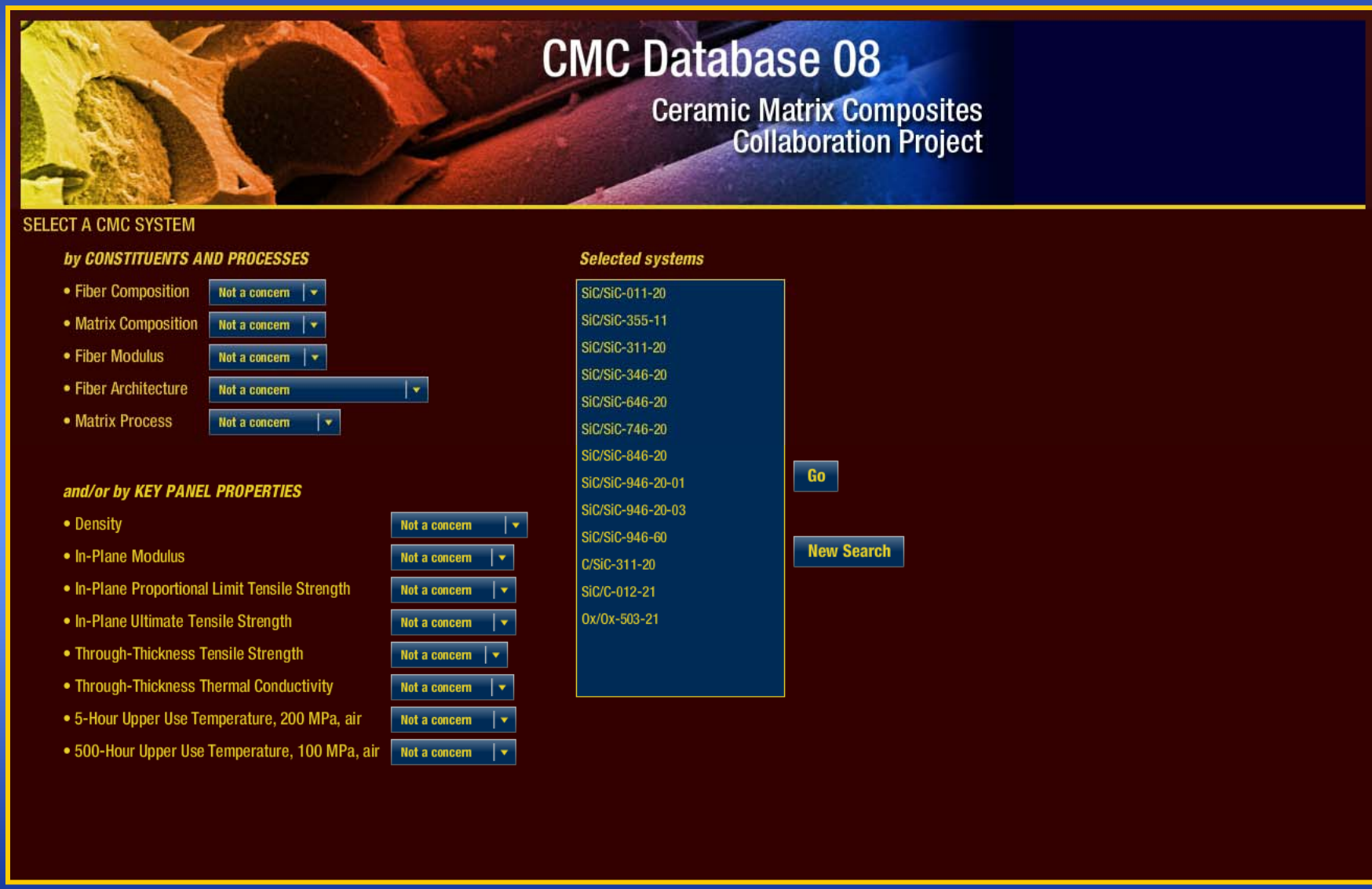
CMC Database 08
Ceramic Matrix Composites
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SELECT A CMC SYSTEM
by CONSTITUENTS AND PROCESSES
• Fiber Composition
Not a concern
• Matrix Composition
Not a concern
• Fiber Modulus
Not a concern
• Fiber Architecture
Not a concern
• Matrix Process
Not a concern
and/or by KEY PANEL PROPERTIES
• Density
Not a concern
• In-Plane Modulus
Not a concern
• In-Plane Proportional Limit Tensile Strength
Not a concern
• In-Plane Ultimate Tensile Strength
Not a concern
• Through-Thickness Tensile Strength
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Intro | Physical Properties | Mechanical Properties

Background

The SiC/SiC-946-20-01 CMC system was initially developed under the former NASA Enabling Propulsion Materials (EPM) program, which had as one of its primary goals the development of an advanced CMC combustor liner for a future high speed civil transport (HSCT) [1]. In 1999, the NASA EPM program was terminated due to cancellation of HSCT research. Subsequently the new NASA Ultra Efficient Engine Technologies (UEET) program was initiated to explore advanced technologies for a variety of low-emission civilian engine systems, including building on NASA EPM success to develop a 1315C SiC-fiber composite system for potentially hotter components, such as inlet turbine vanes. This systems was first labeled 01/01 in terms of its first date of extensive production and testing. It was subsequently labeled N24A to distinguish it from improved versions. These versions have prefix N for NASA, followed by their approximate upper temperature capability in degrees Fahrenheit divided by 100, that is, N22, N24, and N26, with suffix letters A, B, and C to indicate their generation.

Potential Applications

This CMC system addresses many of the general performance needs of combustor liners that need to operate for many hundreds of hours at an upper used temperature of ~1200C [2].

Vendors

vendors for SiC/SiC-946-20-01

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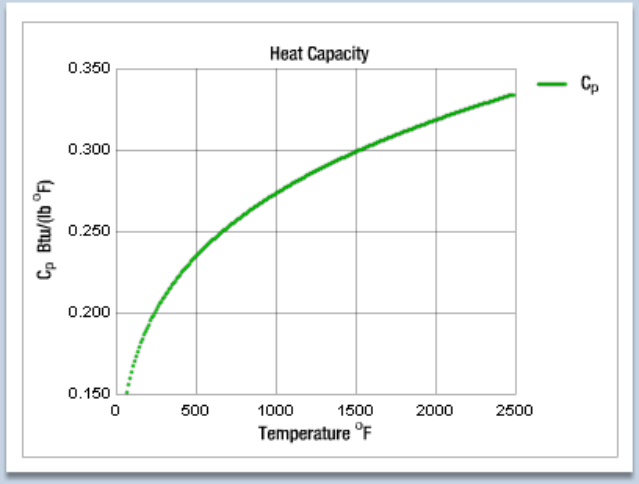
- Density
- Heat Capacity
- Total Thermal Expansion
- Coefficient of Thermal Expansion
- Thermal Diffusivity
- Thermal Conductivity
- Electrical Conductivity
- Gas Permeability
- Surface Roughness
- Hardness-Vickers
- Friction coefficient-static
- Friction coefficient-kinetic
- Total Emissivity
- Spectral Emissivity
- Recession

Heat Capacity

Temp °F	C_p Btu/(lb °F)
70	0.151
200	0.191
400	0.222
600	0.243
800	0.259
1,000	0.272
1,200	0.283
1,400	0.293
1,600	0.302
1,800	0.310
2,000	0.317
2,200	0.324
2,400	0.330



Project Status

- Initial site design completed

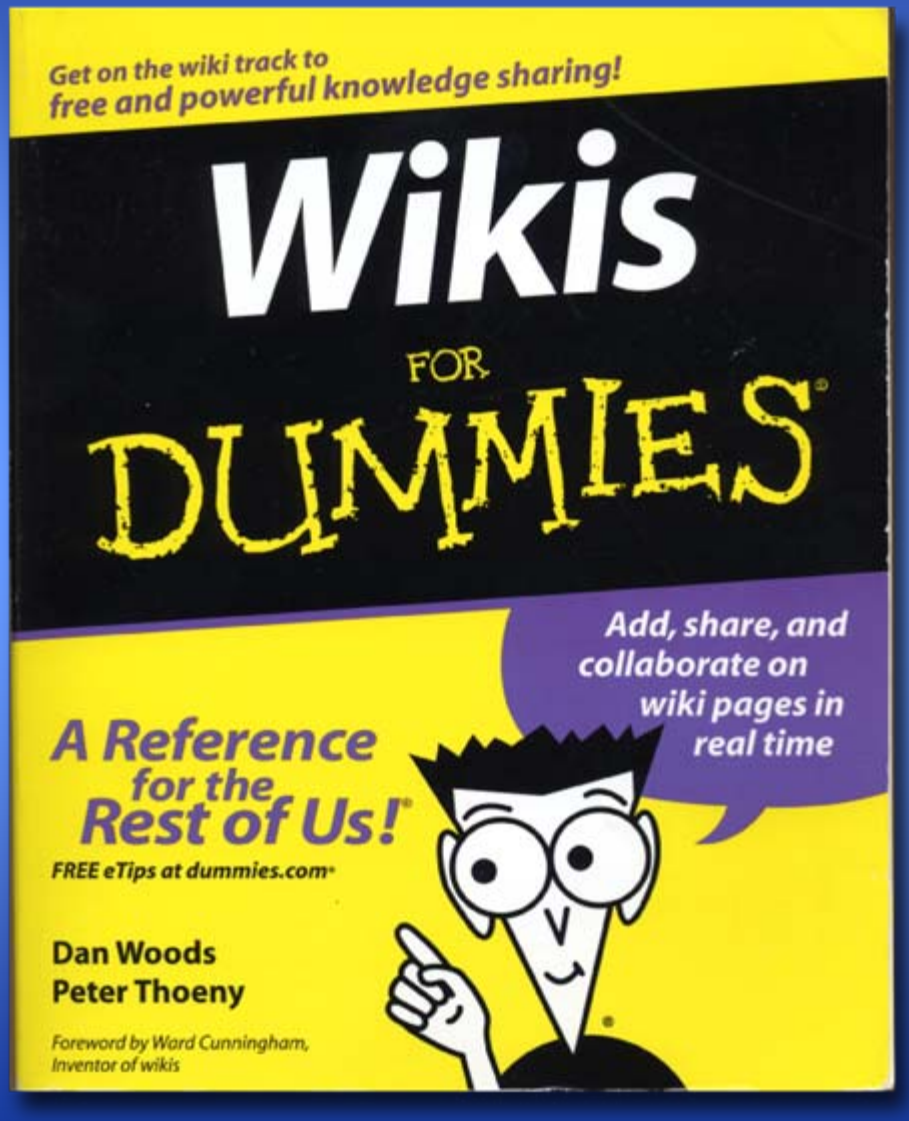
- Rollout to NASA wide beta test team underway

- Develop seamless integration of materials database

- Improve usability of Publication and Reference section

- Expansion of member base to occur in 3-6 months

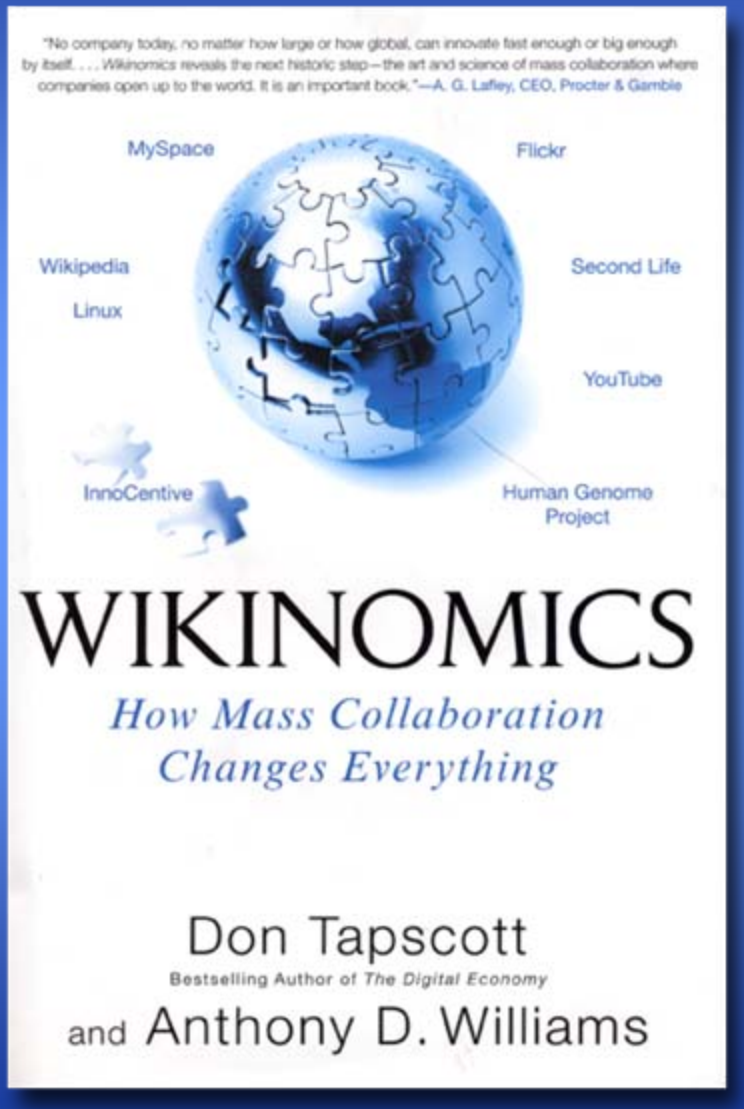
"Wikis, born in 1995, had a quiet childhood. Now, as wikis approach their teens, they are having a heck of a coming-out party as they are used absolutely everywhere for everything imaginable."



"In just the last few years, traditional collaboration

– in a meeting room, a conference call, even a convention center –

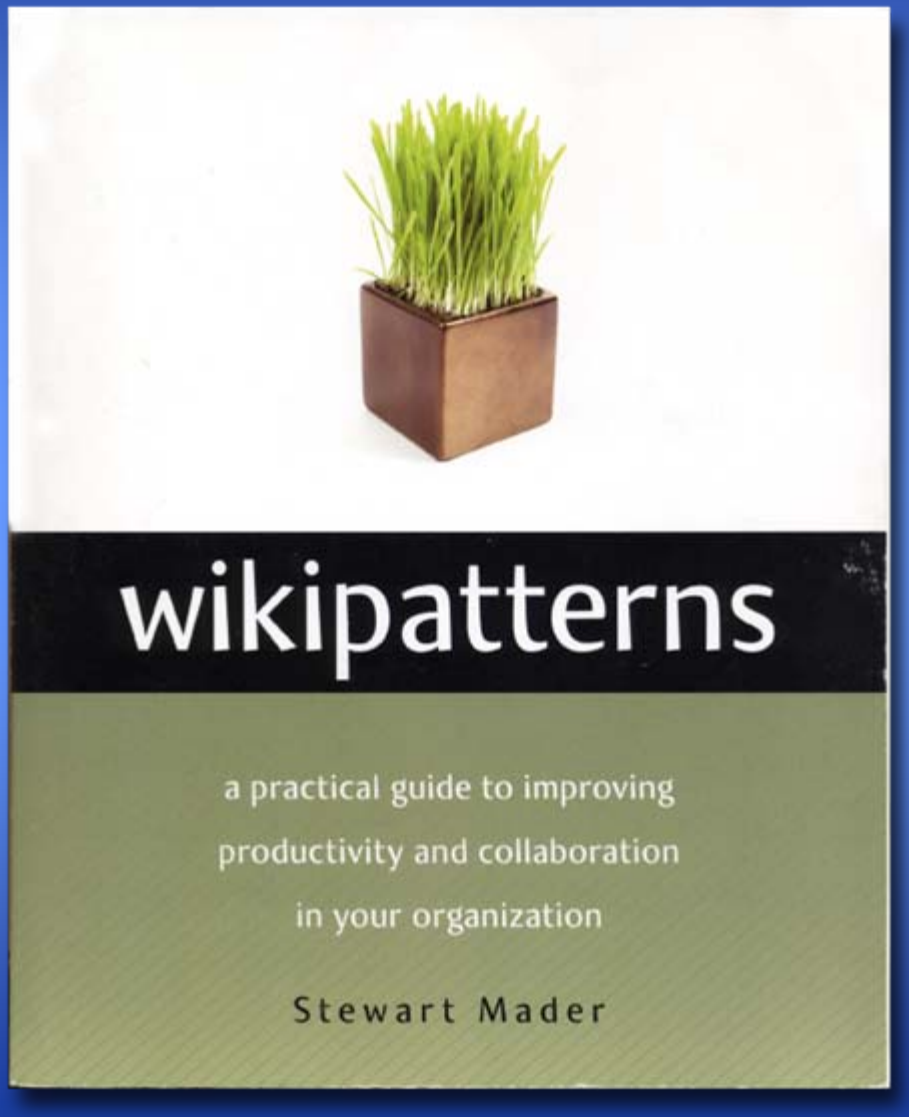
has been superseded by collaborations on an astronomical scale"



"Our complex culture demands creative decisions from larger proportions of the workforce, yet this same complexity robs folks of the confidence to make timely choices.

Therefore, Create an idea-sharing environment where the incomplete can be linked together and from this, creative solutions emerge."

-Ward Cunningham



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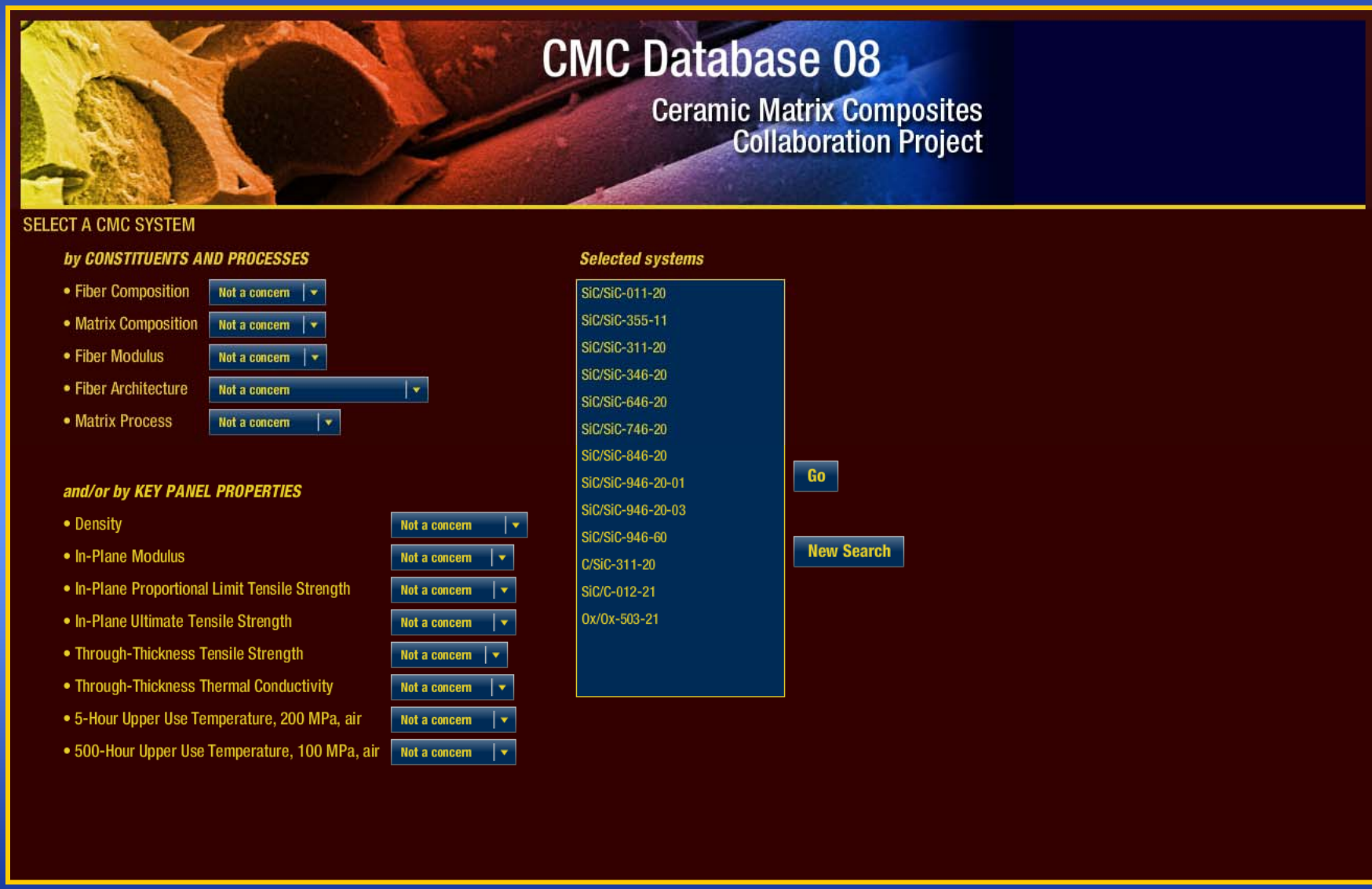
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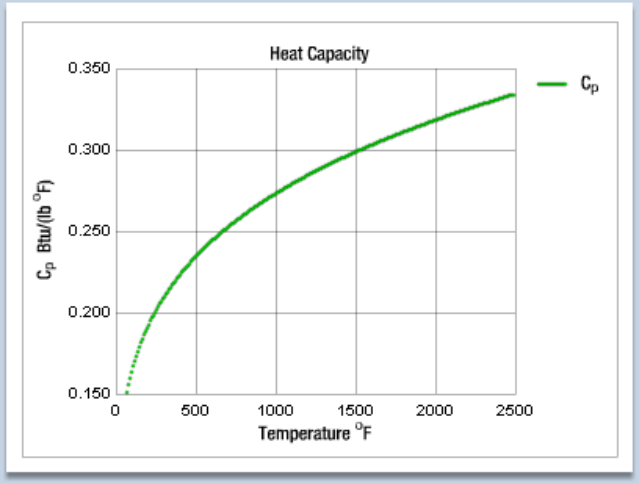
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