WCFA'09 & PUM3
VÍLANEC, CZECH REP.
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EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND
INVESTMENT IN YOUR FUTURE

It's a Free, Free World

What You Can Find on www.pragtic.com
and How to Use It

Jan Papuga

Screen Print of www.pragtic.com

Login to the system

Latest changes

Change of language

User: unknown | Login | HOT NEWS: PragTicA revived, News System, Correspondents, PragTic v.0.2betaL, FinLiv

Language / Jazyk: CZ

PragTic Software

PragTic Freeware Project

Concept
PragTic SW
Author
FAQs
Bugs

Fatigue Lounge

PiU Prize '09
News
Users
User Profile
Conferences
Gallery
Forum
Reports
Links
Sponsors

- News
- Downlo
- Present
- Help for PragTic
- Preview

1. PragTic Freeware

3. Fatigue Lounge

Registe... ...any new version of PragTic thanks to the Notification system. The proposition to include... ...whenever they are logged in.

2. Fatigue Database

4. PragTicA Project

5. Meeting

Commentary to Actual V

Notice

May 11, 2008 - PragTic v. 0.2 betaL: The new version contains above all a fix of the... ...n. The most of newly found errors were removed as well. New features are:

- Possibility to show the rain-flow matrix for a load spectrum. If the load spectrum is... ...node, a right mouse button click allows you selection to prepare a square rain-flow matrix. Just test it.
- The conversion of results from axisymmetric model to full 3D proceed and is now much more handy, but as I haven't been able to prepare complete help to this command, wait please until I prepare one or ask directly through the e-mail. It is run through the Result Import dialogue as an import of a whole *.fdb database (this way should not be used for other purposes than this one). Better do not use it without further information.
- Tools->FE Model->Transformation->Nodes->Change GCS allows an application of a transformation matrix on the node positions. This feature is intended for a use within work with axisymmetric models, which are not otherwise supported in PragTic yet. Anyway, an implementation of a direct solution on axisymmetric models should follow during this summer, because it can largely simplify solution of

Fatigue Database

Concept
References
Material DB
FatLim DB
FinLiv DB
Job File
Glossary

PragTicA Project

FADO

WCFA'09 & PUM3

Application
Payment
Transport
Program

New Features from WCFA'08 & PUM2

- Correspondent status – new type of user

- Conference site functionality improved – conferences of other category than fatigue enabled

- News system – got public, i.e. opened for edition

- FinLiv database – huge extension of FatLim functionality

- PiU Prize section

- Gallery section – some photos from meetings

- Job File – FatLim in a package for the use in PragTic

- FADO site – just a starter

Notification System

- Access through:

  - User Profile -> Your preferences button at the bottom - all items with notification system implemented

  - Individual items can be selected on their respective sites

Users' Access Levels

group	what who can...	visitor	participant at the UM	anonymous user	privileged user	moderator	administrator
	view the most of pages	X	X	X	X	X	X
	attend the user meeting		X	X	X	X	X
PragTic	download Help to PragTic	X	X	X	X	X	X
	download PragTic			X	X	X	X
Forum	visit Forum				X	X	X
	write to Forum				X	X	X
	regulate Forum					X	X
Databases	view content of databases	X	X	X	X	X	X
	add items to databases				X	X	X
	edit items in databases as their manager				X	X	X
	edit any items						X
	delete items in databases						X

Correspondent

- An additional type of basic user (to privileged and anonymous users existing previously)

- Person
  - who wants to be in touch
  - not stay in silence
  - wants to input new conferences to the Conference system
  - wants to write to News section

1. PragTic Freeware

- Why I am doing that (Concept)

- Download (PragTic SW)

- Online Help (PragTic SW)

- Contact to my person (Author)

- FAQs }

- Bugs }

To be consulted before every important calculation

Reporting of Bugs in PragTic

- Any registered (and logged in) user can report bugs he finds in PragTic

2008-09-15 17:58:10	**ID(28):** Collapse after asking for results on CTRIA6 or CTRIAR elements	Manager: jan E D
Report: If any of both these element types (MSC.NASTRAN) is within the description of results, the viewing of the results collapses.	**Reported for:** 0.2betaG
	Removed in: 0.2betaH
Admin commentary: There is an error in the respective *.ein files. Look for CTRIA6.ein and CTRIAR.ein in the directory, where you have placed WinPragTic.exe, open the files for edition and change the line "RLCN,8" to "RLCN,6". This should solve the problem. No repeated import of the result data should be necessary.	**Severity:** minor

What the user / reporter inputs

What I input

- Scale of bugs severity

    - Minor – interface, or simple bypass

    - Medium – clear manifestation, but can affect the results

    - Substantial – unclear manifestation, affecting the results, there is bypass way

    - Critical – no easy way around and heavy impact on the results

2. Fatigue Databases

- Why I am doing that (Concept)

- Set of databases (FatLim DB, FinLiv DB, References, Material DB)

- Job File – a file system with complete inputs for the FatLim database

- Explanation of some keywords (Glossary)

FatLim

- Experiments related to multiaxial fatigue limits
- Load types – harmonic or static
- Specimens types – smooth, unnotched
- Includes results of fatigue limit predictions

FinLiv

- Generalized FatLim
- Covers the most properties of different fatigue experiments of specimens without joints
- Work on it unfinished, the project is too huge now – will continue if I get grant for it

Reasons for FatLim Internet Database

1. proof of a suitability of my own method (see Int J Fatigue 1/2008)

2. ensuring that only verified error-free experimental data are used

3. comparing different existing methods and sort them according to their results in different categories

4. providing a tool, which would tell what quality of results you can expect for your type of loading and the material used

5. overcoming problematic points noted in the next slides

Common problems – "Soft" Data

Evolution rule I: The sets of experiments which "meet wishes" of the methods are preferred
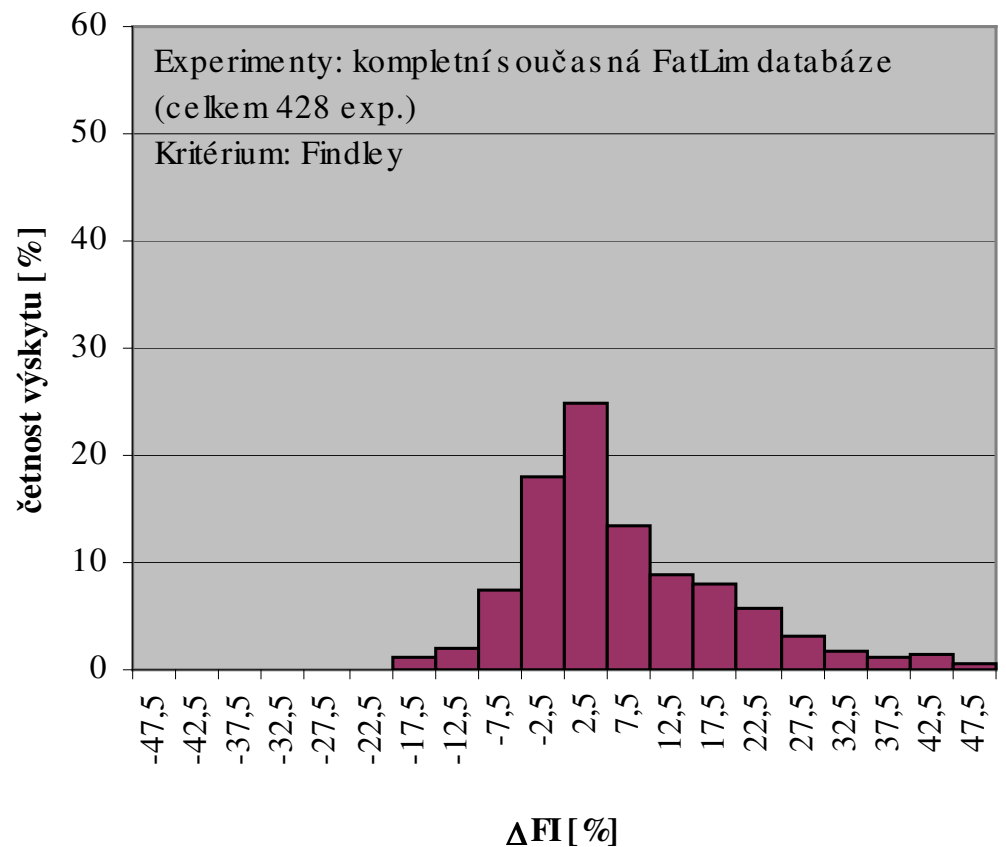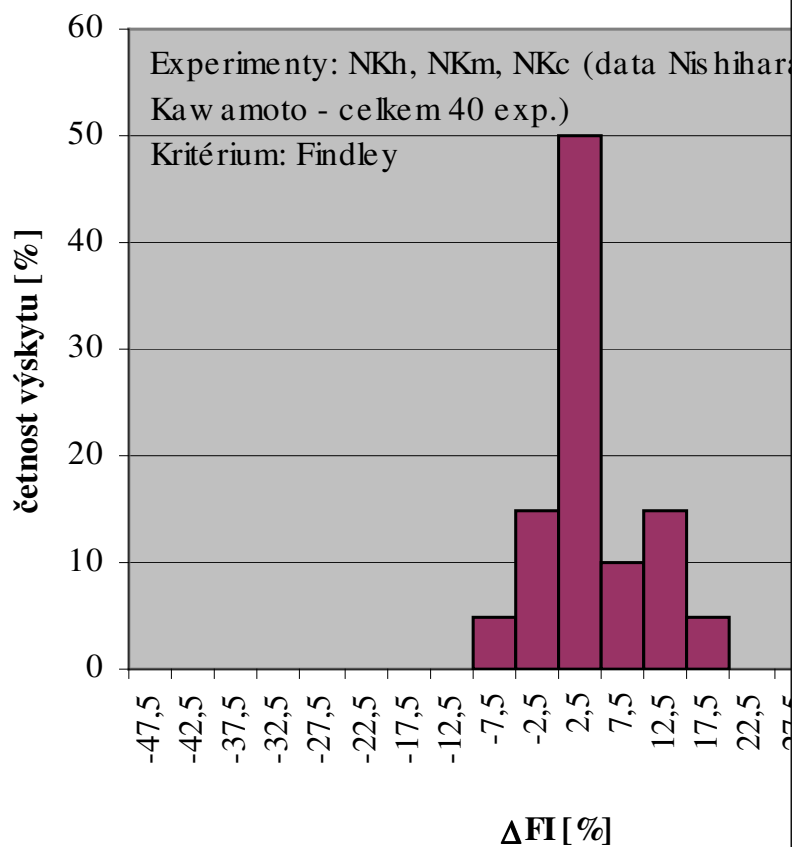
Common Problems – „Softened" Data

- **Evolution rule II:** If some experiment in the set of experiments does not suit you, remove it.

- Repeated reproduction of data from secondary sources prevents detection of such cases and also hides the originator of the softening

NINIC, D.; STARK, H. L.: A multiaxial fatigue damage function. Int. Journal of Fatigue 29, 2007, pp. 533-548.

Case	Remark	σ_a [MPa]	σ_m [MPa]	τ_a [MPa]	τ_m [MPa]	δ [deg]	ΔFI
FI801	PB	157,9	82,8	0,0	0,0	0	12,0%
FI802	PB	143,4	206,9	0,0	0,0	0	28,8%
FI803	PB	138,6	310,3	0,0	0,0	0	43,4%
FI804	PB	131,0	448,3	0,0	0,0	0	58,3%
FI805	PB+To	161,4	0,0	33,4	0,0	0	-0,5%
FI806	PB+To	124,8	0,0	62,4	0,0	0	-7,2%
FI807	PB+To	124,1	82,8	62,1	41,4	0	11,2%
FI808	PB+To	115,2	206,9	57,6	103,4	0	33,6%
FI809	PB+To	103,4	310,3	51,7	155,2	0	43,5%
FI810	PB+To	102,8	0,0	75,2	0,0	0	-8,7%
FI811	PB+To	79,4	0,0	95,9	0,0	0	-0,9%

FINDLEY, W.N.: Combined-stress fatigue strength of 76S-T61 aluminum alloy with superimposed mean stresses and corrections for yielding. NACA Technical Note 2924, May 1953.

Common Problems – Intersection

- Great number of various methods
- If a new criterion is introduced, the results reported are for:
  - the new criterion
  - only several older methods (less adequate, simple to compute)
- The comparison among newer methods is missing

	Crossland	Dang Van	Findley	Fogue	Goncalves	Liu & Mahadevan	Liu & Zenner	Matake	McDiarmid	Ninic	Papadopoulos	Robert	Sines	Spagnoli	other
Banvillet et al. (IJF 2003)	X	X									X				X
Carpinteri & Spagnoli (IJF 2001)			X					X	X						
Goncalves et al. (IJF 2005)	X										X				X
Liu & Mahadevan (IJF 2005)								X	X		X				
Papadopoulos et al. (IJF 1997)	X							X	X				X		X
Ninic & Stark (IJF 2007)									X					X	X
Zenner et al. (IJF 2001)											X				
Bernasconi et al. (IJF 2006)		X					X				X				
pořadí v úspěšnosti ve FatLim*)	6	12	9	5	4	7	8	14	1	3	11	2	13	10	

*) Ranking of the method's overall results in FatLim

Problems – Publishing of Research Results

- Due to limited allowable scope, a common research paper can be published only in two ways
  - Complete description of results for a small experimental set
  - An overall conclusion of results without detailed data

Paper	Number of experiments	Details
publikace	počet experimentů	detaily
Banvillet et al. (IJF 2003)	38	ano
Carpinteri & Spagnoli (IJF 2001)	30	ano
Goncalves et al. (IJF 2005)	41	ano
Liu & Mahadevan (IJF 2005)	57	ne
Papadopoulos et al. (IJF 1997)	43	ano
Ninic & Stark (IJF 2007)	108	ano
Zenner et al. (IJF 2001)	179	ne

CZ ~ EN
----
ano ~ yes
ne ~ no

FatLim - Selector

- At present:
  - 451 experiments
  - 18 calculation methods
- Statistic evaluation is prepared automatically for data chosen in the selector

New Experiments to FatLim?

1. Change your profile to the privileged user if you have been the anonymous user up to now (Edit Profile)
2. Add all new authors (References)
3. Add new proceedings or journal (References)
4. Add the paper itself (References)
5. Add the material data (Material DB)
6. Add the experimental load data (FatLim DB)
7. Add the result data to the experiments (FatLim DB)

If interested see

http:www.pragtic.com/docu/IJFrejected_FatLim.pdf

FatLim Source File for PragTic

- Job File section (www.pragtic.com/FL_job.php)

- Complete source file including
    - material data
    - load data
    - calculation methods setup

- PragTic allows run of the calculation for one method on all experiments
    - technically, it could be done for all methods, but the task directory would be filled with too many files

- Can be used for:
    - immediate check of individual methods
    - learning how to work with PragTic
    - check on newly input data of similar nature

FinLiv Database Project

- Started at Hochschule Esslingen two years ago

- Semestral project of 3 bachelor students

- Expansion of the current FatLim database to finite lives

  - material database stays in the same form

  - FatLim expanded by new variables concerning

    - fatigue life

    - notch type

    - technological procedures

  - Separation of FatLim and FinLiv databases

- The students have to propose the structure and collect data

- Project suspended after several months – the responsible person left the research team

FinLiv Structure

- FinLiv is an envelope of FatLim and includes much more features:

  - finite lives

  - notched specimens

  - other periodical loads than harmonic ones

- Currently, its development was stopped and waits for "better times" and bigger team ☺

Databases, to Which Users Can Input

- Bugs (-> PragTic Freeware Project)
- Users (-> Fatigue Lounge)
- Conferences (-> Fatigue Lounge)
- References (-> Database of Fatigue Limits)
  - Authors
  - Papers
  - Proceedings
  - Journals
- Material DB (-> Fatigue Databases)
- FatLim & FinLiv DBs (-> Fatigue Databases)
  - fatigue experiments
  - corresponding prediction results (currently disabled, until FinLiv gets better integrated)
- Forum (-> Fatigue Lounge)
- News (-> Fatigue Lounge) – privileged users & correspondents

User Inputs

- The databases allow input of own data to registered users

- How to ensure credibility of presented data?
  - Sign of the registered users
  - Manager function
    - Once you add some data, you are the responsible one to take care of them
    - Only the manager or administrator can revise this particular data
  - If you want to revise the data of another manager
    - Write the revise proposal
    - It is documented, the manager is informed
    - The manager has a 30-day time limit, in which he has to accept or decline the proposal
    - If the proposal is declined, the proposer still can write to the Forum
    - If the manager does not do anything, the new proposal rewrites the original data and the proposer becomes its manager

Prepared feature

User Inputs

Basic Common Interface
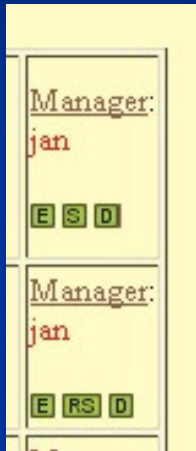
- Report on the fact who is the Manager of the item

- **E** button – edit the data (visible to Manager only)

- **S** button – sign the data (visible to any user logged in)

- **RS** button – remove your sign (visible to the user logged in, who previously signed the item)

- **D** button – delete the data (visible to Administrator only)

Functions and Databases I Miss

- **FinLiv**
  - It should be finished
  - And loaded by the data we have in hands
- **Edit system for other people than managers**
- **Notification system for the Forum, Materials, FatLim and FinLiv**

Help Wanted

- **Work with the databases:** I started to build first databases after two days of study
- **Search for new data:** The material database can be very helpful to anybody of you, if continuously expanded

3. Fatigue Lounge

- PiU Prize

- Board with news (News)

- List of users (Users)

- Access to your user profile and to your setup of Notification System items (Edit Profile)

- Forum

- Database of conferences (Conferences)

- Some reading, usable references – Reports

- Links

- Sponsors

PiU Prize

- **PragTic in Use contest**
    - Intended for young engineers and researchers (up to 40)
    - Goal: To boost the use of PragTic in this category
    - Basic condition: The final paper given to the jury should describe the work done including the use of PragTic
- At last, the PiU Prize money were 1500 EUR in 2009
- Too low number of applicants => cancellation
- Reasons?
    - Short time left to prepare the papers (3 months)
    - Small advertisement
    - Zero tradition
- I would be interested in your opinion or your will to apply before I will try to contact the sponsors again

News

- Goal: Provide possibility of one-way communication (informing, advertising)

- Sections:
  - PragTic development
  - Changes on www.pragtic.com
  - Fatigue calculations
  - Dissemination of projects
  - Next steps by www.pragtic.com
  - Personal stuff
  - Jobs & Studies related to fatigue
  - Fatigue related projects

- Notification system is activated here (you must ask for it, when logged in)

- Active access enabled to
  - Privileged users
  - Correspondents

- Editorial Board established to check the content adequacy

Forum

- Enabled for privileged users only

- Nobody uses it, why? (I know about people registered to PragTic just to look there)

  - It is too empty (somebody should start to raise question ☺)

  - People are not used to ask there (Why? Look on iMechanica.org forum – a minimum interest in fatigue calculations is obvious!)

  - Coupling with e-mail box through Notification system is missing

  - Inadequate forum topics

Conferences

- List of conferences related to engineering
  - It should serve for whole CSM organisation
- Notification System
- Input system available for registered users and correspondents
- The selector system was largely improved
- **S**, **RS** buttons
  - another function here
  - user declares that he comes (**S**) to the conference or decided not to come (**RS**)

Help Wanted

(I do not know about any other similar page related to the central European region – help me to keep it up-to-date)

| 17th International Workshop on Computational Mechanics of Materials; Aug 22, 2007 - Aug 24, 2007; Paris, France
 Deadline for abstract: Mar 16, 2007
 Web pages: http://iwcmm17.ensmp.fr/
 Attendants: hruby | Manager: <br> jan

 E S D |