

MEETING TEMPLATES - SimPEG

Subject/Purpose	- SimPEG Mesh and operators meeting
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Organizer's Name	Luz Angelica Caudillo Mata	Date	2013-07-11
Organizer's Location	ESB 4013		
Meeting date/ location	GIF room	from:	12:00
		to:	13:00

ATTENDANTS			
No	Name	Initials	RoI
1	Eldad Haber	EH	Participant
2	Dave Marchant	DM	Participant
3	Lars Ruthotto	LR	Participant
4	Luz Angelica Caudillo Mata	LACM	Participant
5	Kristofer Davis	KD	Participant
6	Seogi Kang	SK	Participant
7	Jenn Fohring	JF	Participant
8	Wing Wa Yu	WY	Participant
9	Klara Steklova	KS	Participant
10	Kristofer Davis	KD	Participant
11	Christoph Schwarbach	CS	Participant

PRE-REQUISITES	
Description	Who
Integrated mesh	RC, LACM
Operators	KS,SK
Buy sushi	JF

AGENDA						
Hours of		Time (min)		No	Topics	Discussion Leader
Start	End	Plan	Real			
13:00		10	10	0	Sushi	All
		5	10	1	Mesh class and naming conventions	RC
		10	10	2	Operators: DIV	SK
		10	10	3	Bitbucket	DM
		5	5	4	Wiki	LR
			25	5	Future work	EH

Totals	60	70	
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ACTIVITIES, ACTIONS AND IMPORTANT INFORMATION			
No	What	Who	When
1	Complete coding and testing DIV, GRAD, CURL, Mass and Averaging Matrices operators	SK, KS	18-07-2013
2	Full simulation QSMEF	EH, JF	18-07-2013
3	Implement different types of sources (see types in section Future work)	KD	18-07-2013
4	Plotting fields in a mesh	LR, RC	18-07-2013
5			
6			
7			
8			

Notes

MEETING SUMMARY

1. Mesh class and naming conventions
RC and LACM integrated all the mesh codes created by LR-LACM, RC and DM. Some naming conventions for the class properties and methods were defined. See the wiki section "*Coding Conventions*" for further details.

The updated mesh class was already uploaded in the repository.

2. Operators
SK showed his implementation of the DIV operator. This code implements testing. It requires a bit more of work to be completed and tested.
3. Wiki
LR updated the wiki page inside the repository. General message: use it!
4. Bitbucket:
DM briefly showed how to use SourceTree and bitbucket together to upload the new code done.

An important thing to realize is that everyone can click the button merge. So, be careful!

5. Future work:
 - Types of sources to be implemented:
 - a) Analytical sources:
 - Dipoles
 - Half space (For example in the air bone context)
 - Full space
 - Look for analytical expressions



b) Wires: for example loops.

c) Point dipoles

- Plotting fields in a mesh
- Design class structure for the full simulation of the Quasi Static Maxwell's Equations in Frequency domain (QSMEF).
- Forward modeling with flow (in particular interested in advection case)
- Solvers

Which ones to use? Some options mentioned:

- MUMPS (favorite): <http://graal.ens-lyon.fr/MUMPS/>
- SuperLU: <http://crd-legacy.lbl.gov/~xiaoye/SuperLU/>
- PETSc: <http://www.mcs.anl.gov/petsc/>

AGREEMENTS

1. **The output of our code must support MATLAB compatibility output and visualization. So we can easily compare the results with what we have.**

COMMENTS AND OTHER TOPICS TO BE DISCUSSED IN FURTHER MEETINGS

1. **Interpolation matrix to move from the solution to the receivers and decide about which mesh to use**
2. **Connection to MUMPS: EH, Roman will work on this after full simulation QSME is done.**
3. **Think about output formats (design a data file for transmitters, receivers and frequency?)**
4. **Next meeting will be on Thursday July 18, 2013 at lunch time in GIF room.**
5. **Wing is on charge of the sushi next time.**