Project 2:Jacobis method, Fys 4150

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Abstract

Jacobis method

Introduction

Theory and Algorithms

$$\begin{pmatrix} 2 & -1 & 0 & ... & ... & 0 \\ -1 & 2 & -1 & 0 & ... & 0 \\ 0 & -1 & 2 & -1 & 0 & ... \\ ... & ... & ... & ... & ... & ... \\ 0 & ... & 0 & -1 & 2 & -1 \\ 0 & 0 & ... & 0 & -1 & 2 \end{pmatrix} \begin{pmatrix} u_1 \\ u_2 \\ u_3 \\ ... \\ ... \\ u_n \end{pmatrix} = \begin{pmatrix} f_1 h^2 \\ f_2 h^2 \\ f_3 h^2 \\ ... \\ ... \\ f_n h^2 \end{pmatrix} \tag{1}$$

A. Memory handling and algorithms

Source code and accompanying codes can be found at the git hub address:
https://github.com/ajmarkestad/Fys4150/tree/master/Project2

```
//general forward algorithm
for (int i=1; i<=n; i++)
        {
        b[i]=b[i]-c[i-1]*b[i-1]/b[i-1];
        f[i]=f[i]-c[i-1]*f[i-1]/b[i-1];
        }
```

Results

Conclusion

References

[1] Morten Hjort-Jensen *Computational Physics Lecture Notes Fall 2015* Department of Physics, University of Oslo 2015 https://github.com/CompPhysics/ComputationalPhysics/blob/master/doc/Lectures/lectures2015.pdf