Project 5 - FYS4150
The Schrödinger equation

Nanna Bryne, Johan Mylius Kroken, Vetle A. Vikenes
(Dated: December 5, 2022)

Abstract
Supporting material may be found in the following GitHub repository: https://github.com/Vikenes/FYS4150/tree/main/project5.

NOMENCLATURE

Basics

$x \in [0,1]$; $x \to x_i = ih$ with $i = 0, 1, \ldots, M-1$.

$y \in [0,1]$; $y \to y_j = jh$ with $j = 0, 1, \ldots, M-1$.

$t \in [0,T]$; $t \to t_n = n\Delta t$ with $n = 0, 1 \ldots, N_t - 1$.

$u(x,y,z) \to u(ih, jh, n\Delta t) \equiv u_{ij}^n$.

U^n is a matrix with elements u_{ij}^n.

$v(x,y) \to v(ih, jh) \equiv v_{ij}$.

V is a matrix with elements v_{ij}.

NB

M is the number of points along x and y axis.

$M-1$ is the number of steps.

$M-2$ is the number of internal points (excluding boundary points).

u_{ij} is the same as $u_{i,j}$.

Dirichlet boundary conditions

$u(x=0,y,t) = 0$.

$u(x=1,y,t) = 0$.

$u(x,y=0,t) = 0$.

$u(x,y=1,t) = 0$.

I. INTRODUCTION

Blah blah 2

II. METHODS

III. RESULTS

IV. DISCUSSION

V. CONCLUSION

Appendix A: First appendix section