IRES Japan 2024: Numerical Solution of Schrödinger's Equation

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Week 5 (7/1 - 7/5)

5	1-Jul	J-PARC Facility Tour	
5	2-Jul	Finished harmonic oscillator code and plots Comparison of harmonic oscillator and box plot with analytic solutions	
5	3-Jul	Put together slides for interim presentation Interim Meeting	
5	4-Jul	Studied numerical continuation Continued writing code for continuation method (problem 5.4)	Reading + notes
5	5-Jul	SPring-8 Facility Tour	

Goals for next week: finish continuation method, start study of 3-dimensional Schrödinger equation

I began this week in Tokai, where I had the privilege of touring the J-PARC accelerator facility with the other IRES internship students. My favorite part of the experience was the J-PARC Hadron Hall; the tour was highly informative, and it was so cool to see in person! On Tuesday I finished my work with the harmonic oscillator and did some comparison of my results for my problems with their respective analytic solutions. With the remaining time I put the finishing touches on all my plots and materials for the interim presentation on Wednesday. I spent Wednesday morning putting my slides together and the afternoon in the meeting. It was nice to see what everyone else had been working on and a good experience to present and get feedback about my own work. Today (Thursday) I did some independent study of the continuation method (and more specifically, the Numerov algorithm). After this I continued working on my code for the continuation method of solving the Schrödinger equation, which I will first be applying to Problem 5.4. I have chosen to submit this report today because all day tomorrow I will be at the SPring-8 tour.