

OVERVIEW of Prof. Dr. Hugo de Garis's "MPC" YouTube Lecture Series

WELCOME to "deGarisMPC" !

These YouTube lectures are designed to allow you to teach yourself (no matter where you are in the world, and how little money you have, provided that you have a computer or cell phone with access to the internet and YouTube) to a **PhD** level of competence in the 3 fields of Pure **M**athematics, Math **P**hysics, and **C**omputer Theory, (**MPC**). These lectures are **FREE** (but *donations* from rich first worlders would be appreciated ;-)

My Motives for Creating these MPC Courses

My personal interest in MPC is the conviction that the future of Computer Science is Math Physics (When I was waging, in a previous life, I was a full professor in a Computer Science department, teaching grad students topics in MPC.) Moore's Law makes such a future inevitable. As the size of computer components keeps shrinking, they become increasingly subject to the laws of quantum mechanics, but quantum computers are fragile to local noise, hence the need to manipulate information robustly using topologically invariant quantum field properties. To study at this level, as a computer scientist, you will need a hefty (PhD level) dose of pure math and math physics, which this series of lectures (deGarisMPC) aims to provide. Thus my primary motive is to help educate a new generation of "MPCers" for the time when topological quantum computers (TQC) arrive and revolutionize everything.

But, that's only one (although the dominant) motivator. I also love the fields of pure math and math physics, so pushing myself to teach these advanced topics will motivate and force me to study these topics well, well enough to be able to teach them to very bright students (i.e. in the top percentile of IQ, a class of students I label "alphas")

Another motive is to help educate the world, for free, so that 3rd world alphas can be given the opportunity to educate their fine minds to PhD level and contribute later to the development (and in some cases, democratization) of their country's economies (and politics).

Another motive is to make education much cheaper. Why should education be so expensive? The annual fees at Harvard are now about \$40,000/year. The internet, high definition camcorders, and YouTube can kill off such expensive institutions, and force them to reorganize, into a far cheaper format.

Details of the Lectures

Most of these YouTube lectures are at graduate level, i.e. 1st (**M1**) and 2nd (**M2**) year masters, and PhD (**PhD**, **PhD2**) levels. They cover fairly comprehensively the range of topics of these 3 (MPC) fields.

User Guide

If you want to download free files from eMule.com you should download eMule software.

A list of MPC topics to be covered is to be found under the “MathPhysComp YouTube Lectures” tab on the website (<http://profhugodegaris.wordpress.com>) There are well over 100 of these topics, each usually containing several hours of lectures. Once a topic has been camcordered and uploaded to YouTube, a “link indicator” (i.e. [\(link\)](#)) will be placed at the right of the topic label, along with the statement **VIDEOED**, e.g.

*Lie Algebras (M1,2) [\(link\)](#) **VIDEOED***

If a topic has not yet been camcordered and uploaded to YouTube, no such link indicator will be found to the right of the topic label, e.g.

Lie Groups (M1,2)

Those topics that have been newly linked to within the past 3 months will also be pointed to in **red**, with the date of its creation, e.g.

*Lie Algebras (M1,2) [\(link\)](#) **VIDEOED** <== new, 15 June 2020*

Clicking on the [\(link\)](#) will open a window which gives information such as :-

- a) Prerequisites : A list of courses you need to have studied before this one.
- b) Recommended text books and/or research papers to use with the topic’s lectures
- c) Approximate costs of the texts, new & second hand, Amazon.com (for hard copy)
- d) Comment on the availability of articles etc. for free on eMule.com (for e-copy)
- e) Key word(s) to use for search of files on eMule.com
- f) (Most importantly) link(s) to the YouTube camcordered lecture(s)
- g) Links to other recommended teachers/professors video lectures on the same topic

If you have suggestions, comments, etc and want to contact me, I can be reached at profhugodegaris@yahoo.com My website is <http://profhugodegaris.wordpress.com>

ENJOY and be educated in MPC to PhD level (free)!