



CHALMERS
TEKNISSKA HÖGSKOLA
CHALMERS UNIVERSITY OF TECHNOLOGY
GOTHENBURG SWEDEN

M I K A E L K U B I S T A

HAR AVLAGT
FILOSOFIE DOKTORSEXAMEN
DIPLOMA OF DOCTOR OF PHILOSOPHY

GÖTEBORG 3 juni 1988

Sven Olving
Sven Olving
Rektor

Gerd Åsberg
Gerd Åsberg
Avdelningsdirektör

Namn
Name

Mikael Kubista

Personnummer
Year, month & day of birth; identification No.

610813-9434

har enligt SFS 1977:263 avlagt filosofie doktorsexamen
i ämnet

has fulfilled the requirements specified in the Swedish
Code of Statutes 1977:263 for the degree of Doctor of
Philosophy in

Fysikalisk kemi

Physical Chemistry

och därvid dels fått betyget godkänd på de kunskaps-
prov som ingår i utbildningen, dels författat en veten-
skaplig avhandling (doktorsavhandling) och muntligt
försvarat denna vid en offentlig disputation, varvid av-
handling och försvar bedömts med betyget godkänd av
en särskilt tillsatt betygsnämnd.

said requirements including final examination on per-
tinent engineering science and the writing of a doctoral
thesis, which as well as its public oral defense has been
submitted to and passed by an examining committe.

Doktorsavhandlingens titel:

se nedan

Title of the doctoral thesis:

Protein - DNA Complexes Studied with Polarized - Light Spectroscopy

Examinator:
Examiner:

Professor Bengt Nordén

Betygsnämndens ordförande:
Chairman of the examining committee:

Professor Tore Vänngård

CHALMERS UNIVERSITY OF TECHNOLOGY

GENERAL INFORMATION

Chalmers University of Technology is situated in Gothenburg on the West Coast of Sweden. The University, which was founded in 1829, is operated by the Government.

The educational program comprises undergraduate and graduate courses in the classical fields of engineering and in architecture. Normally the undergraduate courses take four and a half to five years. The undergraduate programs lead to a degree of Master of Science in Engineering or Master in Architecture. The graduate courses lead to the degree of Doctor of Philosophy.

Chalmers University of Technology has about 5 000 students at the undergraduate level and about 500 graduate students. In addition, each year about 1 000 persons attend single courses. The University has about 2 200 full time employees working as teachers, researchers, assistants, technicians and administrators. About 1 000 persons are temporarily employed for special tasks such as giving guest lectures and consultations.

The supervision and administration of Chalmers University of Technology are carried out by the University Council (Högskolestyrelsen) and the Office of the Rector (Rektorsämbetet).

The University is organized into six Schools corresponding to the main areas of technology—Architecture, Chemical Engineering, Civil Engineering, Electrical Engineering, Engineering Physics, and Mechanical Engineering and Naval Architecture. There are also Centers coordinating research and education in important interdisciplinary areas.

GRADUATE PROGRAM

The doctoral degree is the only graduate degree offered within the Swedish university system.

Doctor of Philosophy (Ph.D.) is the doctoral degree offered by Chalmers University of Technology.

Graduate programs leading to the Ph.D. are given in all six Schools at Chalmers University of Technology, i.e. in the Schools of Architecture, Chemical Engineering, Civil Engineering, Electrical Engineering, Engineering Physics, and Mechanical Engineering and Naval Architecture.

Graduate studies are pursued in one specific subject only. The graduate program comprises about one year of courses and seminars and about three years of independent research. The research results are published in a doctoral thesis, which must be defended in public. Judgement is passed by an examining committee. Only two grades—Pass and Fail—are used for the course and seminar work as well as for the thesis and its defense.

Chalmers tekniska högskola grundades 1829 och är belägen i Göteborg.

Vid högskolan bedrivs matematisk-naturvetenskaplig, teknisk och industriekonomisk forskning och utbildning. Verksamheten bedrivs vid ca 75 institutioner varav tio är gemensamma med Göteborgs Universitet. Institutionerna är organiserade inom sju sektioner. För samverkan inom viktigare tvärvetenskapliga områden finns ett tjugotal centra.

Chalmers tekniska högskola har ca 5000 studerande inom nio civilingenjörs- och arkitektlinjer och ca 800 forskarstuderande. Dessutom deltar varje år ca 2500 personer i övriga tekniska utbildningar. Antalet fast anställda är drygt 2000.

Årligen examineras omkring 700 civilingenjörer och arkitekter. Ca 80 personer avlägger teknisk licentiatexamen eller teknisk doktorsexamen.

FORDRINGAR FÖR LICENTIAT- OCH DOKTORSEXAMEN

Inom CTHs forskarutbildning finns två olika examina – teknisk licentiatexamen och teknisk doktorsexamen. Licentiatexamen är en självständig examen eller en etapp mot doktorsexamen, beroende på den studerandes val. Teknisk licentiatexamen och teknisk doktorsexamen avläggs i ett ämne. Vid CTH finns ca 90 olika ämnen med forskarutbildningsprogram.

För tillträde till forskarutbildningen krävs civilingenjörs- eller arkitektexamen på en mot utbildningens inriktning svarande linje eller på annat sätt förvärvade motsvarande förkunskaper.

TEKNISK LICENTIATEXAMEN

Fordringarna för teknisk licentiatexamen (tekn lic) motsvarar två års heltidsstudier (80 poäng) och omfattar en kursdel och ett självständigt arbete som redovisas i form av en licentiatuppsats. Uppsatsen skall presenteras vid ett offentligt seminarium. Proportionerna mellan kurs- och uppsatsdelarna varierar men varje del skall omfatta minst 20 poäng. Betyget på uppsatsen sätts av examinator.

TEKNISK DOKTORSEXAMEN

Fordringarna för teknisk doktorsexamen (tekn dr) motsvarar fyra års heltidsstudier (160 poäng) och omfattar en kursdel och en doktorsavhandling, där kursdelen normalt omfattar minst 40 poäng. Avhandlingsarbetet är ett självständigt arbete som antingen presenteras såsom en monografi eller såsom en sammanläggning av flera vetenskapliga uppsatser. Doktorsavhandlingen skall försvaras vid en offentlig disputation. Betyget på doktorsavhandlingen sätts av en betygsnämnd.

BETYGSSKALA

Endast betygen godkänd och underkänd förekommer inom teknisk licentiat- och doktorsexamen, såväl på kurser som på uppsats/avhandling. Licentiatuppsats respektive doktorsavhandling får författas gemensamt med annan om respektive författares insats beskrivs klar.

Chalmers University of Technology was founded in 1829 and is situated in Gothenburg on the West Coast of Sweden.

The University has research and teaching programmes in the natural sciences with mathematics, in the technical sciences and in the industrial-economical sciences. It has about 75 different departments, 10 of which belong jointly to Gothenburg University. The technical faculty is divided into seven sections and there are also about 20 centres for multi-disciplinary research cooperation.

Chalmers University of Technology has about 5000 undergraduate students in eight schools of engineering and one school of architecture and about 800 graduate students. A further 2500 students attend other technical courses each year. The number of employees is a little more than 2000.

Each year about 700 engineers and architects graduate from Chalmers and about 80 postgraduates are awarded a technical licentiate or doctor's degree.

REQUIREMENTS FOR THE DEGREE OF LICENTIATE OR DOCTOR

The graduate school of Chalmers awards two different degrees – "teknisk licentiatexamen" and "teknisk doktorsexamen" (PhD). The licentiate is a degree in its own right, but can also be taken as a step towards the doctor's degree, according to the student's choice. Each degree is taken in a particular subject. Chalmers has graduate programmes in about 90 different subjects.

The requirement for admission to graduate studies in a particular subject is the degree of "civilingenjör" or "arkitekt" from the corresponding engineering school, or an equivalent level of knowledge in the relevant subject.

TEKNISK LICENTIATEXAMEN (Lic. Eng.)

The requirements for the licentiate degree (tekn lic or Lic. Eng.) correspond to two years of full time study (80 points) and include both coursework and a research thesis. The latter is to be presented at an open seminar. The relative proportions between the course and research requirements vary, but each must correspond to at least 20 points. The thesis is assessed by an examiner.

TEKNISK DOKTORSEXAMEN (PhD)

The requirements for the doctor's degree (tekn dr or PhD) correspond to four years of full time study (160 points) and include both coursework and a thesis. The courses normally correspond to at least 40 points. The thesis can take the form either of a monograph or of a series of scientific publications. The thesis is required to be defended at a public disputation and is assessed by a board of examiners.

SCALE OF MARKS

The licentiate and doctor's degrees are unclassed – only the marks "godkänd" (passed) and "underkänd" (failed) are awarded for the courses and for the thesis. The licentiate or doctor's thesis may be written in cooperation with other scientists, provided each author's contribution is clearly specified.