CURRICULUM VITAE

Prof. dr. ir. Leo P. Ligthart, Ceng, FIEE, FIEEE

Affiliation and official address:
Director IRCTR
Delft University of Technology
Faculty of Electrical Engineering Mathematics and Computer Science
Mekelweg 4
2628 CD Delft
The Netherlands
tel: + 31 (0)15 2781034
fax: + 31 (0)15 2784046
e-mail: l.p.ligthart@irctr.tudelft.nl

Date and place of birth:
September 15, 1946, Rotterdam, The Netherlands

Nationality:
Netherlands

Marital status:
Married, 4 children

Education
Doctor of Technology, Delft University of Technology, Thesis(advisor: Prof. Ir L. Krul): "Antenna Design and Characterization based on the Elementary Antenna Concept", December 1985.

Engineers degree Cum Laude (M.Sc.), Delft University of Technology, (advisor: Prof. Dr Ir A.T. de Hoop): "Electromagnetic Reflections from a transparent diffraction grating", June 1969.

Career/Employment

1968-1969	: Student-Assistant at the Delft University, Microwaves Laboratory
1969-present	: Faculty of Electrical engineering, Delft University
1976-1977	: Chalmers University Gothenburg, Sweden
1987-1997	: Advisor-Getronics Telecom and Industrial Electronics
1988-1991	: Professor in "Electronic Systems for Positioning & Navigation (radar)", Delft University
1988-1992	: Advisor-Radiocommunications Rotterdam (radiotrunking in Rotterdam area)
1988-1996	: Advisor Intercai BV
1992-present	: Professor in "Microwave transmission, Radar and Remote Sensing", Delft University
1992-present	: Chairman "Telecommunications Tele-observation Technology", Delft University
1994	: Established with support from the Ministry of Education, Culture and Science the International Research Centre for Telecommunications-transmission and Radar (IRCTR)
1994-present	: Director of IRCTR

Specialization

(i) main fields:	antennas & propagation, radar and remote sensing
(ii) other fields:	satellite, mobile and radio communication
(iii) current research:	radio-propagation, multi-function antennas, radar remote sensing of subsurface, earth and atmosphere, multi-parameter radar, radar networking, microwave transmissions
(iv) Internationalization:	more than 45 international agreements with Technical Universities more than 10 national and international agreements with industries and industrial laboratories

Honours, Awards, Fellowships, Memberships of Professional Societies

Prof. dr. ir. Leo P. Ligthart, Ceng, FIEE, FIEEE

Vederprijs-award, 1981
IEE-Blumlein-Brown-Willans Premium Award, 1982
Doctor Honoris Causa at Moscow State Technical University of Civil Aviation, 1999
Doctor Honoris Causa at Tomsk University of Control Systems and Radioelectronics , 2001
Fellow of Institute of Electrical Engineers (FIET) (1983)
Fellow of Institute of Electrical and Electronics Engineers (FIEEE) (2001)
Member of the Russian Academy of Transport (2000)
IEEE – MIKON award (2004)

Activities in organisations
Member of the Board of Directors of the European Microwave Association (EuMA)
Advisor of Academy of Science Finland for CoE SMARAD
Member of the Subcommittee for Space Techniques of the Scientific Committee NLR/NIVR
Member of the IET Technical Advisory Panel for Antennas and Propagation Professional Network
Member of the IET Technical Advisory Panel for Radar, Sonar and Navigation Professional Network
Member of the Grand Review Committee appointed by the Ministry of Education in Italy
Member of the International Review Committee of the National Research Foundation in South Africa
Member of the Steering Board of Antenna Centre of Excellence (EU)
Member of the CESAR steering board
Advisor of the Scientific Research Flanders, Belgium
Advisor of the Scientific Research Council of KUL
Expert of IWT Vlaanderen, Belgium
TUD Student Counsellor IET
TUD Student Counsellor IEEE
Reviewer of IET and IEEE journals
Reviewer of NWO proposals
Editor of Scientific Reports, EuMC Workshops and Short Course Proceedings
Chairman of Utilization Committees and project manager of projects with support of the National Technology Foundation (STW)
Project manager of projects with the support of the National Science Foundation (NWO)
Member of the Editorial Board on Transactions on Microwave Theory and Techniques
Member Organising Committee URSI2002, Maastricht
Netherlands representative-URSI, commission F
Member-NERG (Nederlands Elektronica en Radio Genootschap) Netherlands Electronics and Radio Society
Member Technical Programme Committee of several IET, IEEE conferences
Member Organising and/or Technical Programme Committees of Conferences on Microwaves, Radar and Wireless Communications (Mikon, JIPR, EuMC, VTC, ICAP, etc.)
Member Management Committee EuMC
Member Steering Committee EuMC
Chairman 28th EuMC
Chairman of the 1st EuMW98
Chairman of the 1st EuRAD conference 2004
Organiser of PATO (Post Graduate Course) on Sparse Arrays and Antennas
Organiser of the international courses on Antennas, GPR
Keynote speaker at conferences

Since 1994 Prof. dr. ir. L.P. Ligthart is director of the International Research Centre for Telecommunications-Transmission and Radar (IRCTR) which is part of the Faculty of Electrical Engineering Mathematics and Computer Science (EEMCS) of the Technical University of Delft. Under his directorship, IRCTR focuses its research activities into the specific areas of: antennas and propagation, radar technology, telecommunications transmission and microwave remote sensing. At present IRCTR has many national and international co-operative research projects with industry, institutes and other universities.

With support from the Netherlands Technology Foundation (STW) and national and international institutes, organizations and industries IRCTR started projects with research groups in the Former Soviet Union (FSU) to incorporate knowledge of those research groups into IRCTR on Polarimetric Radar Remote Sensing and on Ground Penetrating Radar. Prof. dr. ir. L.P. Ligthart received an Honorary Doctorate from the Moscow State Technical University of Civil Aviation for his contribution to knowledge fusion on radar technology from the FSU countries with existing knowledge in Western countries. He received an Honorary Doctorate from the Tomsk State University of Control Systems and Radio electronics for his contribution to bring the research at that university at an international level.

Prof. Ligthart is responsible for the outstanding radar facilities on the roof of the almost 100 m tall Faculty building. Based on the request of Prof. Ligthart a new high-tech mm-wave facility was granted and installed inside a conditioned room. Tests up to 110 GHz of the AB-mm system and the HP system have shown that IRCTR is well prepared to step into the mm-wave arena.

Prof. Ligthart is project manager of a number of interdisciplinary projects of which 5 are listed below.

- **Real time radar signal processing for advanced FMCW radar systems.** It concerns a multi-sensor multi-static, wide-band, sparse array FMCW radar concept in the 10 GHz and 2 GHz band.

- **Transportable Atmospheric Radar system (TARA).** TARA is an FMCW high resolution, highly sensitive, Doppler-Polarimetric radar allowing atmospheric studies of and detection of small vessels hidden in sea clutter. Large reflector antennas with low side lobes are additional challenges in the programme.

- **Advanced relocatable multi-sensor system for buried landmine detection.** The aim is to investigate the feasibility of using ground penetrating radar with integration of multiple microwave sensor – technologies to improve the individual landmine detection.

- **WiSE.** Wide band sparse element array antennas research will create a platform for the development of a physical demonstrator of the shared aperture antenna concept. Applications are, multi-function ground bades radar and satellite communications.

- **PARSAX.** Together with TARA, PARSAX is a Polarimetric Agile Radar in S- and X-Band radar will be developed the coming years

Furthermore Prof. Ligthart is involved in EU 6th FP programs like ACE, PASR, RADIOTECT, ORPHEUS and EUROPCOM**,**

Prof. Ligthart initiated the IRCTR concept which received national and international high recognition. The concept is:

> "by combining existing Delft University expertise, infrastructure and recognition with explorable increased international interests from companies, organizations and universities, the IRCTR should become an international "centre of excellence" in the areas of telecommunications and radar".

The concept is based on contributions from top-scientists who see the advantage of their participation into international research programs. Finances for payment of their contributions were made available thanks to the special money from the Netherlands Ministry of Education, Culture and Science.

The fact that the Netherlands government accepts this concept in which Netherlands' state money for research flows towards international scientists, made this breakthrough happen. In 2005 the IRCTR institute was evaluated by an internationally recognized jury. They marked the institute with an 4.4 on a scale of 5, which indicates the viability of IRCTR.

Other achievements are:

1. He founded the international institute IRCTR with state of the art experimental research facilities in the field of antennas, radar and radio. The facilities are accessible for scientists from institutions and organizations, which have co-operations with IRCTR.
2. International co-operations based on Memoranda of Understanding or Letter of Intend with more than 21 universities and 23 scientific institutes and organizations established during the directorship of Prof. Ligthart.

3. Over 40 international Project Agreements on the basis of the IRCTR strategy which was initiated by Prof. Ligthart.
4. He manages projects as project leader in the field of polarimetric atmospheric radar, collision avoidance radar, GPR and wireless communications
5. He manages projects as project leader with support from industries and institutes
6. He started up co-operations with Russian and FSU universities and institutes
7. He invites many top-scientists from USA, Russia, Turkey, Taiwan, Japan, Ukraine, etc.
8. He initiated Branches of the institute in Russia and Indonesia.
9. He was the founder of the first European Microwave Week (EuMW) in Amsterdam in 1998. This yearly conference week is now the main Microwave event in Europe

His main research activities are on

Antennas
1.Dielectric Antennas
2. Delft University Chamber for Antenna Tests (DUCAT)
3. Research Telescope on the roof of the (90 m tall) Faculty building
4. Elementary Antenna Concept
5. Multiple beam antennas
6. Miniatuur antennas for radar
7. Microstrip antennas

Microwave Transmission
1. Modelling the wave propagation
2.. Multi-path propagation
3. Precipitation effects
4. Attenuation (absorption and scattering) and cross-polarisation
5. Frequency scaling

Experiments
1. 12.5 - 30 GHz satellite communication
2. 20 GHz radiometry
3. 37.5 GHz digital radio link
4. Fading counter measures
   - site-diversity
   - route-diversity
   - angle-diversity
5. Mobile data communications above 1 GHz
   - aeronautical telecommunications (SSR-mode S, satellite) - land mobile satellite communications

Radar Remote Sensing
1. Modeling
   1. Polarimetric Radar Cross Section
   2. Radar target decomposition techniques
   3. Atmosphere, ground and sea surface
   4. Simulations

2. Sensor developments
   1. Airborne phased array radar
   2. Scatterometers

3. Experiments
   1. Clear Air Turbulence
   2. Precipitation
   3. Doppler-polarimetric classification
   4. DUCAT polarimetry
   5. Applications: Hydrology, Cloud physics
   6. Imaging

Radar

1. Delft Atmospheric Research Radar (DARR)
    1. Hardware
    2. Integration hardware/software
    3. Measurement campaigns
    4. Analysis software
    5. Data-analysis

2. FM-CW radar
    1. Doppler
    2. Polarimetry
    3. Weather surveillance radar
    4. Agility
    5. Safe guarding

3.Radar networks
    1. ATC radar sensors
    2. Integration ATC radars
    3. RADNET (Radar Network for interconnecting European ATC's)

4. Ground Penetrating Radar
    1. Ultra Wide Band Impulse Radar
    2. Stepped Frequency Continuous Wave
    3. Dual Polarimetric
    4. Interferometry
    5. Multi-Static

Scientific output

Over 500 papers
4 Patents
2 books