



SAMPS NEWS

2001/2002

For those of you who were wondering if there is anybody out there, here, finally, is the SAMPS newsletter. Far from being stagnant, it appears that there are a number of exciting developments happening in Medical Physics in South Africa. The number of new additions is encouraging, but alas some of the regular contributors seem to have fallen by the wayside. We hope you will be excited and enthused by what is happening. Read on!

Department Radiation Services Johannesburg Hospital

The new radiation Oncology building is under-construction and we are looking forward to moving out of "old" Hillbrow Hospital buildings as soon as the new building is complete, probably towards the end of 2003.

We are currently running Medical Physics Joint meetings every month together with the Pretoria Academic Group, CSIR, SABS and medical physicists from local private practices. In these meetings we discuss new and existing protocols, new equipment technologies and new developments in the field of medical physics. These meetings are CPD accredited.

As far as staff is concerned, we have good and bad news

Firstly it is sad to announce the retirement of Dr Mary Jean Scott after being with the department for many years. We shall miss you Gogo.

Mary Jean has left to take up the mantle of the ministry in the CPSA. (See picture)



Roy Mlambo also finished his training, but sadly he had to go back to his home country, Zimbabwe, poor thing! We will miss u

Roy.

Professor Debbie van der Merwe is ever busy. She has been asked by the IAEA to help in the developing countries like Namibia, Tanzania, Ghana, and Zimbabwe. She attended a research contract meeting at the IAEA in Vienna in 2001. She is doing a wonderful job of increasing the Medical Physics manpower desperately needed as soon as we move to new building.

John Bhengu is now a qualified physicist and he is now spending most of the time working on the new well chamber for the calibration of HDR and LDR sources. He is our brachytherapy expert.

Nipho Mdletshe is going to register with the council soon. He is our marathon runner and he won 7 medals in 6 months and has successfully managed to inspire us to participate in sports.

Nico van der Merwe has joined us and he is currently working in the diagnostic radiology and nuclear medicine department. Now we have 2 van der Merwe's in the department.

Sekai Shambira, a beautiful lady from National University of Science and Technology in Zimbabwe, and Givenson Mbatha from University of Zululand joined the department as interns. Another intern will join us in July 2002.

The Two IAEA fellows, one from Tanzania (Radiographer) and another one from Kenya (Medical Physicist) trained in the department this year. They are going to spend 3 months with us and we are very happy to have them and share information with them.

Sandile Kolobile and Lindekile Shabangu completed their training and registered with the council as Radiation Laboratory Technologists (RLT). They are doing wonderful work in our Mould-room where we have an intake of 6 full time RLT students.



TYGERBERG HOSPITAAL EN DIE UNIVERSITEIT VAN STELLENBOSCH

Aan die begin van 2002 het mev Emma Snyman as mediese fisikus by ons departement aangesluit. Ons was verheug om mev Snyman in ons midde te verwelkom. Vir 'n periode van meer as sestiende maande het Tygerberg Hospitaal slegs twee mediese fisici op sy diensstaat gehad wat twee groot departemente, naamlik Stralingsonkologie en Kerngeneeskunde moes bedien. Mev Snyman het haar opleiding in Bloemfontein ondergaan en het reeds

'n draai gemaak in die onderwys en in privaat stralingsonkologie.

Ons het op die oomblik twee mediese fisika interns wat hier opleiding ondergaan. Mev Louise Prins het reeds vroeg in 2001 met haar opleiding begin en mnr Monwabisi Vuza in Februarie 2002. Monwabisi Vuza het so-pas sy M.Sc-graad aan die Universiteit Wes Kaap voltooi.

Emma Snyman is genomineer om die AFRA werkswinkel oor die implementering van die IAEA TRS398 Dosimetrie Gebruikskode vanaf 29 April tot 3 Mei 2002 in Tunisië by te woon.

In November 2001 het Wilhelm Groenewald as projekkoördineerder die koördineringsvergadering vir die AFRA mediese fisika projek in Marrakesh, Marokko bygewoon. Die koördineringsvergadering het saamgeval met die eerste kongres van AFROG, die African Radiation Oncology Group. Op die koördineringsvergadering is die konsep werskdokument vir die mediese fisika projek, wat tydens die taakgroep byeenkoms in Bloemfontein, 18 tot 22 Junie 2002 opgestel is, eenparig aanvaar. Die aanvaarding van hierdie dokument hou belangrike implikasies in vir mediese fisika op die Afrika kontinent.

The dynamic team at the department of Nuclear Medicine was entertained by many exciting events during the past months. The most noteworthy item is the telelink with Windhoek in Namibia. The Nuclear Diagnostics Hermes system was installed in July last year and the telelink has proved to be beneficial to both departments. The system administrative tasks and software support of both hospitals is

managed by the physicist, Shivani Ghoorun.

Shivani presented lectures at a regional workshop titled “Acceptance Testing and Quality Control of SPECT Systems” in Rabat, Morocco at the end of last year. She also performed the acceptance testing of a small field of view Mediso Gamma Camera at the Ibn Sina Hospital in Rabat.

The department hosted a Brain Imaging Workshop in November 2001. A medical physicist and a nuclear medicine physician from the universities of Leuven and Ghent were the guest speakers at this workshop.

The staff in Nuclear Medicine was honoured by the visits of the following renowned professors in the field:

- Prof Johan Nuyts (June 2001), a physicist from the Catholic University of Leuven
- Prof Keith Britton (September 2001), nuclear medicine physician from St Bartholomew’s Hospital in London
- Prof Patrick Dupont (November 2001), a physicist from the Catholic University of Leuven
- Prof Rudi Dierckx (November 2001), a nuclear medicine physician from the University of Ghent.

Future projects mainly involve telelinking with other countries in Africa, with Tanzania being first on the list.

If you wish to find out more about the Nuclear Medicine Department at Tygerberg Hospital, please visit our website at www.sun.ac.za/nuclear.

NEWS FROM NETCARE

The youngest member of the Netcare Oncology group, OliveMed, turned one in April. Although it has been a bumpy ride with all the new equipment to get used to, it certainly has been a good year. The unit not only boasts with the latest in radiotherapy and radiosurgery equipment, but was also lucky enough to get brand new physics equipment including ionisation chambers for direct water calibration and stereotactic radiosurgery measurements, as well as the LA48 array for dynamic field measurements. The physics equipment is not only used in Gauteng, but is also available to Netcare centres in other provinces.

Shortly after the installation of the Brainlab M3 micromultileaf collimator in OliveMed, a second M3 was installed in Southern Cross Hospital in Wynberg, Cape Town. More than 25 radiosurgery cases each have been treated at OliveMed and Southern Cross since June 2001 and November 2001 respectively.

Stereotactic radiosurgery has always formed an integral part of radiotherapy in the Netcare departments. In order to deliver the best possible service, forums consisting of neurosurgeons, ENT specialists, oncologists and physicists were initiated in Cape Town and Johannesburg to discuss possible radiosurgery cases. After a very successful start, we are currently following up with a country wide tour by two overseas specialists. They will not only present papers on the latest work being done overseas, but will also sit on a panel discussing various case studies presented by local doctors at each venue.

It is not only in Gauteng and Cape Town where things are happening. In



Parklands Hospital in Durban a Millenium 120 Multileaf Varian accelerator was installed in March. This linac has 120 leaves, only 5 mm wide at the isocenter. The stereotactic collimator system was also recalibrated for the new unit for high dose radiosurgery. Building is also almost complete on the new radiotherapy department in Pietermaritzburg, which should be clinical before the end of July.

All of this forms part of the new Netcare approach to medical physics and radiotherapy. In the past, the policy was to use physicists on a consultancy basis, but now the emphasis is on employing physicists full time and utilising their knowledge in all aspects of clinical radiotherapy. As a result of the new policy, two positions have just been advertised for full time physicists in Gauteng and Kwa-Zulu Natal. Unfortunately there is an acute shortage of qualified physicists in radiotherapy, so Netcare has also approved a bursary scheme to train students without putting further financial strain on the provinces. We have applied for partial accreditation for Southern Cross Hospital in Cape Town and OliveMed Oncology in Johannesburg. Students can do part of their practical training in the private sector, with the academic training as well as the remainder of the practical work to be done at the academic institutions. These students will then be employed by Netcare at completion of their training. Students or physicists interested in the bursary or the full-time positions can contact Hester at the e-mail address below.

Hope to see you all at the congress!

Hester Burger (Netcare Head Office - Gauteng)
hesbur@iafrica.com

Erhardt Korf (Southern Cross Hospital - Cape Town)

ekorf@cape.netcare.co.za



**DEPARTEMENT
GENEESKUNDIGE FISIKA
UOVS**

1. PERSONEEL

Ons het met groot leedwese verneem van die onverwagte afsterwe van Marie, Willie Shaw se vrou.

Die Departement Geneeskundige Fisika het 'n groot verlies gelei met die bedanking van Prof van Aswegen op 30 Junie 2001. Roedie Loretz het ook ons diens in Desember 2001 verlaat om in die privaatsektor te werk.

Sussan Acho het in Maart 2001 diens aanvaar as Geneeskundige Fisikus. Sy het vinnig tot 'n gesoute Geneeskundige Fisikus in Radiologie ontwikkel! Hanlie du Raan het weer in Januarie begin werk nadat sy verlof geneem het om 'n familie te begin. Die volgende Intern Geneeskundige Fisici het ook met opleiding begin: Willie Shaw, Macdonald Moji, Vincent Maselsele en Emrie Latti. Met die aanstelling van Grace en Valerie het ons 'n nuwe span sekretaresses/admin personeel gekry wat die lewe vir ons aansienlik vergemaklik.

Ons wil die volgende persone gelukwens met die verwerwing van meestersgrade: Johan Marais, Omar Ali en Pieter du Toit. Willie Shaw en Macdonald Moji het die honneurgraad in geneeskundige fisika geslaag.

Ons het ook die volgende persone verwelkom vir voltydse opleiding of nagraadse studie: Victor Mugabe,

Stanley Magkere, Puleng Molemo, Ahmud Musa, en Frans Gaoseb.

Vier studente het ingeskryf vir die B.Med.Hons. in Geneeskundige Fisika. Drie van die studente het beurse verwerf.

2. AKADEMIESE AKTIWITEITE

a) ONDERRIG

(i) Voorgraads

Charles Herbst en Hanlie du Raan bied lesings in Geneeskunde Fisika aan vir die nuwe 5 jaar voorgraadse uitkomsgebaseerde mediese kursus. Hulle het werklik uitstekende leermateriaal daargestel.

Voorgraadse onderrig is in die volgende kursusse aangebied:

Kursus	Vak	Dosent	Taal
Menslike Voeding	Biof. Spes	Mnr. JA van Staden Mnr. J Marais	English Afrikaans
Arbeidsterapie	Gen. Fis.	Prof. CP Herbst R. Loretz	English Afrikaans
Verpleegkunde	Gen. Fis.	Mnr. FCP du Plessis	English Afrikaans
MBChB I	Mediese Fisika	Prof CP Herbst Prof. CP Herbst Dr H du Raan Prof. CP Herbst	Afrikaans/ English English Afrikaans Afrikaans/ English

(ii) Nagraadse Onderrig

Kursus	Vak	Dosent
B.Med.Sc Hons	Mediese Fisika vir Stralingsonkologie	Dr. CA Willemse Dr J Duvenage Mnr. JS Engelbrecht
B.Med.Sc Hons	Mediese Fisika vir Diagnose	Prof. MG Lötter Prof CP Herbst
B.Med.Sc Hons	Stralingsfisika	Prof. A van Aswegen Dr CA Willemse Prof. MG Lötter Prof CP Herbst
M Med Sc	Geneeskundige Fisika/Onkoterapie	Dr. CA Willemse Dr J Duvenage Mnr. JS Engelbrecht
M Med Sc	Stralingsfisika	Prof. A van Aswegen Dr CA Willemse Prof. MG Lötter Prof CP Herbst
M Med Sc	Mediese Fiasika vir Diagnose	Prof. MG Lötter Prof CP Herbst
M Med Sc	Stralingsbiologie	Dr CA Willemse
M Med Sc	Anatomie	Dr CA Willemse
M Med Sc	Fisiologie	Dr CA Willemse
M.Sc.(Fisio)	Geneeskundige Fisika	Dr. H du Raan
M Med Anes.	Geneeskundige Fisika	Prof. CP Herbst
M Med Rad (D)	Geneeskundige Fisika	Prof. CP Herbst
M Med Int	Geneeskundige Fisika	Prof. MG Lötter
M Med Rad (T)	Geneeskundige Fisika	Dr. CA Willemse

(T) Radioterapie; (D) Diagnostiese Radiologie.

(iii) Nuwe Programme

Die **B.Med.Sc. Stralingswetenskap** het hierdie jaar (2002) in aanvang geneem. Die graad sal bydra dat studente beter voorberei word in die veld van Geneeskundige Fisika. Alhoewel die eerste inname net uit 8 leerders bestaan sal dit dan veral in die toekoms bydra om die groot tekort aan mediese fisici op te hef.

Die **Nagraadse Diploma in Mediese Fisika** sal vanaf Junie 2002 aangebied word. Die doel van die diploma is om die Internskap opleiding meer te formaliseer en aan leerders erkenning te gee vir die opleiding wat ondergaan word.

(iv) Eksterne Eksaminatore

Prof CP Herbst:

B Rad (Diag) 111 - Mediese Fisika vir Kerngeneeskunde Medunsa.

B.Sc.Med. Hons – Mediese Fisika in Radiologie – Medunsa.

Henrietta Stockdale Verpleegkunde Kollege – Kimberley.

Free State School of Nursing – Welkom.

Mmed, Mediese Fisika, MEDUNSA

Fisika vir Anesthesiologie, Kollege van Geneeskunde

(v) Gemeenskapsonderrig

Die volgende lesings is deur Willem van Wyk gedurende die jaar aangebied in die gebruik van rekenaarprogrammatuur:

Powerpoint 94

Internet 15

Excel 29

Rek. & Windows 31

Pmail 18

MSWord 56

b) NAVORSING

Mediese Fisika vir Kerngeneeskunde

Johan van Staden: Alternatiewe beeldversameling by heksein

miokardiale perfusie tomografie

Johan Marais: Beeldregistrasie in

Kerngeneeskunde.

Victor Mugabe(MmedSc): A software phantom for Nuclear Medicine Cardiac studies.

Stanley Makgere(MMedSc):

Comparison of methods to calculate the ejection fraction during Gated

Myocardial Perfusion Spect studies.

J v Staden, Sussan Acho Opspoor van brandwagnode gedurende chirurgie met 'n sintillasiesteller en radioaktiewe spoorder.

Le Roux Rabe en Sonnie Jansen. Die ondersoek na die gebruik van die C14 Urea in die opspoor van infeksie.

Mediese Fisika vir Diagnostiese Radiologie

CP Herbst Die gebruik van Al stapwigte vir die nagaan van kV en moontlik ook mAs tydens die normale gehalteversekering.

S Acho Entrance x-ray radiation doses of X-ray units at Universitas and National hospitals.

Puleng Molemo (MMedSc)
Comparison of different methods of compression of teleradiology images.

A Musa. (MMedSc) Die ontwikkeling van 'n digtheidsmeter.

Mediese Fisika vir Onkoterapie

Dr Casper Willemse: Die toepassing van Monte Carlo tegnieke om die stralingsienskappe van lineere versenners na te boots.

Freek du Plessis: Die gebruik van Monte Carlo tegnieke om IRPM te simuleer

Dr J Duvenage: Die ontwikkeling van 'n kompensatorsnyer vir gebruik by stralingsonkologie.

3. BYWONING VAN KONGRESSE/KURSUSSE EN REFERATE GELEWER

b) Nasionale Voordragte

A. Van Aswegen, J. van Staden, S.

Acho, H. du Raan, M.G. Lötter

Development of gated blood pool software phantom for interinstitutional comparison on the African continent.

SAAPMB, 41st Congress,

Bloemfontein, 2001.

A. Kavuma, C.A. Willemse Monte Carlo simulation of the GWGP-80 Cobal-60 unit. SAAPMB, 41st Congress, Bloemfontein, 2001.

C.A. Willemse, O. Ali Measurement of electron beam output factors for square and rectangular cut-outs.

SAAPMB, 41st Congress,

Bloemfontein, 2001.

C.A. Willemse, R. Loretz Calculation of electron beam output factors using Monte Carlo simulation. SAAPMB, 41st Congress, Bloemfontein, 2001.

S.E. Jansen, L. Goedhals, A. van Aswegen, MG Lötter Comparison of calculated creatinine clearance and radionuclide glomerular filtration rate as indicator of renal function.

SAAPMB, 41st Congress,

Bloemfontein, 2001.

S.E. Jansen, W.L. Rabe, W.P.J. van den Berg, A. van Aswegen, M.G. Lötter. The C-14 urea breath test for the detection of helicobater pylori: comparison with upper gastriontestinal

endoscopic biopsy data. SAAPMB, 41st Congress, Bloemfontein, 2001.

P.D. DU Toit, M.G. Lötter, H. du Raan. Comparison of attenuation coefficients obtained from Monte Carlo simulations and physical measurements using a collimated scanning line source filled with Tc-99m and Ce-139. SAAPMB, 41st Congress, Bloemfontein, 2001.

c) Plaaslike voordragte

W.P.J. van den Berg, A. van Aswegen, S.E. Jansen, W.L. Rabe, M.G. Lötter. The C-14 urea breath test for the detection of helicobacter pylori: comparison with upper gastriontestinal endoscopic biopsy data. UFS Faculty of Health Sciences, Forum, 2001

C.A. Willemse, R. Loretz. Calculation of electron beam output factors for square and rectangular cut-outs. UFS Faculty of Health Sciences Forum, 2001.

C.A. Willemse, O. Ali. Measurement of electron beam output factors for square and rectangular cut-outs. UFS Faculty Health of Sciences Forum, 2001

4. PERSONEEL PRESTASIES.

a) Komitees

Prof. MG Lötter:

Lid: Mediese en Tandheelkundige Beroepsraad. (MTB).

Voorsitter: Komitee vir die Mediese Wetenskap. (MTB)

Lid: Navorsingkomitee: Fakulteit Gesondheidswetenskappe, UOVS.

Lid: Radio-Isotoopbeheerkomitee, Universitas Hospitaal.

Lid: Tele-Medisyne Komitee, Departement Gesondheid, Vrystaat provinsie.

President: Suid Afrikaanse Vereniging vir Fisici in Geneeskunde en Biologie.

Prof. CP Herbst:

Lid: International Atomic Energy Agency "Experts Working Group Meeting to Review the Draft Regulatory Guidance - Radiation Safety in Nuclear Medicine" Wenen, Nov 2001

Lid: Uitvoerende Komitee, Suid Afrikaanse Vereniging vir Fisici in Geneeskunde en Biologie

Beoordelaar: Nasionale Expo - Jong Wetenskaplikes

Lid: Internasionale Beoordelingskomitee Expo - Jong Wetenskaplikes

Voorsitter: Rekenaarkomitee Skool van geneeskunde

Voorsitter: Rekenaarkomitee Fakulteit Gesondheidswetenskappe

Voorsitter: His Komitee Universitas Hospitaal

Lid: Departementele Inligting Tegnologie Komitee - Departement van Gesondheid.

Lid: Etiese Komitee vir Proefdiere

Lid: Keuringskomitee vir Arbeidsterapiestudente

Lid: Tele-Medisyne Komitee, Departement Gesondheid, Vrystaat provinsie

Lid: Finanskomitee: Fakulteit Gesondheidswetenskappe

CA Willemse:

Vise President: Suid-Afrikaanse vir Fisici in Geneeskunde en Biologie

Voorsitter: Relingskomitee van 2001 Jaarkongres van die Vereniging van Fisici in Geneeskunde en Biologie.

Lid: Auditspan van AFRA na Madagasgar om stralings onkologie te ondersoek.

Dr Hanlie du Raan:

Raadslid: Uitvoerende Komitee, SA
Vereniging vir Kerngeneeskunde.

5. PUBLIKASIES IN ERKENDE WETENSKAPLIKE TYDSKRIFTE:

FCP du Plessis, CA Willemse and MG Lötter Comparison of the Batho, Etar and Monte Carlo dose calculation methods in CT based patient models. Medical Physics 2001; 28:582-589.

JA van Staden. CP Herbst, A. van Aswegen, J Marais, MG Lötter, AC Otto Left ventricular ejection fraction calculated from gated Technetium-99-sestamibi SPECT. Cardiovasc J South Africa 2001; 12:196-200.

A van Aswegen, J Marais, SE Jansen, AC Otto, MG Lötter A comparison of glomerular filtration rate values determined using four radionuclide techniques in healthy volunteers. Medical Physics 2001; 17: 83-87

AC Otto. J van Staden, PA van Aardt, E van Aswegen, G Joubert, GHJ Engelbrecht Evaluation of exercise-induced stunning using myocardial perfusion imaging. Cardiovasc J South Africa 2001; 12: 259-262.



PRETORIA ACADEMIC HOSPITAL

The advantage of hitting rock bottom is that you can only go up and that is exactly what we did in a great way.

After being whittled down to only one Physicist we have grown by 300%

Emma Mercer joined us as an intern for experiential training only (she holds the equivalent of the honours course from a UK University) and was

later joined by Janine Locherenberg who is starting from the lowest rung.

Alhoewel ons nie juis nuwe toerusting hier in Pretoria akademies kry nie, het ons, deur privaat praktyke te akkrediteer, heelwat blootstelling aan die nuutste en beste apparaat gekry.

Through our involvement with the Little Company of Mary Hospital (LCM) we had the chance to expose our student to the full process of acceptance and commissioning of a modern linac with MLC and portal imaging.

We are also actively involved in the stereotactic radiosurgery program using a mini-MLC.

IMRT will also be on the menu of treatment modalities to be trained in through our association with LCM.

Daar is verder ook noue samewerking met die Johannesburg groep en maandelikse groepsbesprekings (CPD geakkrediteerd) vind reeds plaas.

Die leemte in ons Kerngeneeskunde program word ook hierdeur aangevul.

Emma has embarked on an MSc study to compare conformal, IMRT and Boere IMRT in prostate Ca.

Already useful results have been generated and an excellent study can be expected.

There are expectations for new equipment in the not so distant future and as always a spirit of optimism reigns here.



**DEPARTMENT OF
MEDICAL PHYSICS
MEDUNSA**

It has been a quiet year with most of our staff intent on further studies.

Staff

As usual we have had an eventful year staff wise. After saying goodbye to Samuel Bakhane and Steven Maage who left to join NAC (now iThemba Labs) we welcome Enoch Sithole and Ronald Phenyane in their place. Samuel and Steven have not left us entirely and are pursuing their Masters degrees through Medunsa. We wish them well in their studies. We also lost Bertin Nkwayim-Ndamkou. He was bitten by the medical bug and decided to study Medicine at Medunsa.

The academic component has certainly not been neglected with the graduation of Ndangeni Mandiwana who graduated with his Masters degree last year and the upcoming graduation of Doctor Maboe and Alan Chamberlain who will receive their Masters and Doctoral degrees this year.

Equipment

Medunsa finally seems to be emerging from the dark as far as equipment is concerned. The new Multislice Spiral CT scanner was installed last year at Ga-Rankuwa Hospital. A new dual head Sopa camera was installed at Pietersburg Hospital (now Polokwane) in the newly created department of Nuclear Medicine. Otto van Reenen was responsible for getting the operation up and running. Medunsa has a co-operation agreement with Polokwane whereby students can be trained at the facilities for services rendered. We are also looking forward to the creation of the new radiotherapy department and installation of a linear accelerator.

Papers / posters presented at national meetings:

SARPS: A society in crisis? A C Chamberlain, C Cole, E Hering, MJ Scott, N Schreuder. 41st Congress of the SAAPMB.

A mathematical method of radiation collimation using a sequence of wire meshes. A C Chamberlain, RP Clauss, WJ Strydom. 41st Congress of the SAAPMB.

