Ready To Publish Your Research?

Are your completed research efforts only filling the pages of your laboratory book or note book? Is your research, painstakingly conducted over a number of years for higher degree purposes, lying in thick, dusty dissertations and theses? Do you feel that you have what it takes to conduct cutting edge research but find difficulty in translating your efforts into peer-reviewed publications? Fear no more! Help is at hand!

The Department of Research Management and Development intends conducting a two day workshop (over a weekend) to help you translate your research efforts into tangible, peer-reviewed outputs. The workshop will be restricted to 10 persons only. You are therefore invited to do the following:

- Choose a peer-reviewed journal that would be the most appropriate vehicle for your research.
- Read and understand the "Instructions to Authors".
- Draft your manuscript according to the instructions.
- Ask a colleague (preferably one who has published widely) to critique your draft manuscript.
- Make the necessary amendments and corrections and submit two hard copies to the Director of Research together with the journal instructions.

Should your submission be considered pre-mature or it does not comply with the instructions, you would be advised accordingly and provided with the necessary guidance. Should your submission be potentially publishable, you would be invited to the workshop. Acceptance would be strictly on a first-come first-serve basis. The workshop would be conducted by the Editor or the Editorial staff of a peer-reviewed journal. The objective of the workshop would be to finalise your draft manuscript for submission to the appropriate journal.

The Director of Research looks forward to receiving your draft manuscripts. Remember, no research is worth doing if it cannot be disseminated to the wider community!

CLOSING DATE FOR RECEIPT OF DRAFT MANUSCRIPTS:

FRIDAY 25th APRIL AT 12H00.

Follow Up On Brighton Workshop

Following the Brighton Research Planning Workshop reported on in the last issue of RE@DIT, a working group, consisting of the Deans and Faculty Representatives met to formulate a proposal for research management structures and processes at DIT.

The working group based their proposals on the contributions made at the Brighton University Research management seminar. The group proposed that the processes relating to registration, monitoring, submission and examination of master's students should serve as the basis for discussions at Faculty Research Committees. These recommendations will then be referred to the Teaching and Learning Committee for discussion and policy decisions. These include:

- DoE Subsidy to Researchers
- Reduction of Teaching Loads
- Supervision (period allocation)
- Academic Research development
- Sabbatical Leave Policy

NRF-funded Research at Technikons in South Africa: How Do We Fare?

In a recent report by Ms. Cheryl Lombard (Manager NRF Technikon Research Development Programme) titled "State of research at technikons: an NRF perspective" numerous aspects impacting on research at technikons were summarised. These included, *inter alia,* effect of the changing HEI landscape, institutional commitment to research, management and organisation of research development, human capital, etc. Ms. Lombard also provided a summary of participation by all technikons in NRF programmes in South Africa. The following table sets out the participation of technikon staff in various NRF programmes:

Technikon	TRDP(2003)		Focus Areas (2003)		Thuthuka(2003)		Thrip (2002)	
	Submitted	Approved	Submitted	Approved	Submitted	Approved	Submitted	Approved
Border	0	0	1	0	5	3 (+1)	0	0
Cape	21 (+3)	13 (+8)	6	2	3	3	3	3
DIT	38 (+2)	24 (+12)	7	2	6	5	5	4
Eastern Cape	0	0	0	0	5	1 (+2)	0	0
Free State	8	4 (+4)	0	0	6	4 (+1)	2	1
Mangosuthu	0	0	2	0	0	0	0	0
North-West	0	0	0	0	1	1	0	0
N Gauteng	0	0	0	0	2	1 (+1)	1	1
Peninsula	16	11(+5)	3	0	0	0	0	0
Port Elizabeth	30	22 (+7)	2	1	4	3 (+1)	2	1
Pretoria	36 (+4)	26 (+7)	12	1	9	7 (+1)	15	9
SA	0	0	0	0	0	0	0	0
Vaal Triangle	12 (+6)	4 (+8)	1	0	4	3	1	0
Witwatersrand	15 (+2)	10 (+4)	1	1	4	2 (+1)	0	0
TOTAL	176 (17)	114 (+55)	35	7	49	33 (+8)	29	19

While the figures for DIT appear to be relatively good, much work remains to be done for the institution to entrench itself as an "Institute of Technology". Academics and researchers are therefore encouraged to increase the capacities of their teams, apply to the NRF programmes timeously, and target tangible output. The DIT salutes all its active researchers and encourages others to come on board.

Publish Or Perish?

In a recent issue of the Monday Edition, the Vice-Chancellor challenged the academic and research community to publish one unit of a peer-reviewed publication per Department in 2003. This is by no means an unrealistic request since the national norm in terms of peer-reviewed publications/peer-reviewed output is 1.0 unit per academic at a University and 0.5 units per academic at a Technikon. At the DIT, the VC's request translates to 73 units of publications for 2003.

This column, to be titled **"The Publications Barometer"** in the next issue of RE@DIT would serve the purpose of tracking our progress. Those individuals and Departments who are productive would receive the necessary recognition. The Department of Research Management and Development would like to urge all academics and researchers to BEAT the target! Should you require any assistance in fulfiling this obligation, you are urged to contact the Director of Research.

NRF Thuthuka Team Visit

Presentation and Workshop
The NRF Thuthuka team will be visiting Durban on the 8th and 9th May 2003 and have invited the DIT staff to a presentation about their programme and their online submission system.

Where: University of Natal (venue to be advised)
Date: 8 May 2003
Time: 8:30 - 10:30

After this presentation the NRF Thuthuka team will be holding a proposal writing workshop starting at 11:30 and finishing at 16:30.

Staff who are interested in attending the workshop on the 8th May are asked to contact Gloria McLean-Anderson on 2558.

Grant holders Meetings
On the 9th May the Thuthuka team would like to meet with current Thuthuka grant holders for individual consultations.

Grant holders are requested to contact Gloria to set up appointments for the 9th May.

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RE@DIT

DURBAN INSTITUTE of TECHNOLOGY

RESEARCH AT DURBAN INSTITUTE OF TECHNOLOGY

Number - 1 Volume 2 28 MARCH 2003

From The Director's Desk

Dear colleagues and members of the DIT community,

We are happy with the feedback received from our first issue of RE@DIT. We are equally pleased with the commitment given by our Executive Management regarding research. The core business of DIT is teaching, research and community outreach. At a Strategic Planning workshop of Executive Management held at Selborne from 7th to 9th March, it was encouraging to note that our vision statement now reads ***"The powerhouse of technological education, research and innovation"*** (see Monday Edition, Vol. 2 No. 7). It is now the responsibility of every academic and researcher to add substance to this vision.

There has been a number of positive developments over the past few weeks regarding research at DIT. This issue of RE@DIT reports on many of these developments which include, *inter alia*, external funding received, further funding opportunities, visiting scholars from the USA, research related workshops, etc.

Should you or your Department have any research-related activity, please contact us so that this information could be more widely disseminated. Let us not underestimate the power of regular, constructive communication! Best wishes with your research!

Professor Gansen Pillay

Merged and Emerging

The NRF (and its predecessors, the CSD and the FRD) and DIT (and its predecessors, ML Sultan Technikon and Technikon Natal), have enjoyed a long association and partnership. Both groups have been through "mergers" (or similar). We have seen people come and go, we have seen exciting new developments, and we have seen research develop and grow. I believe the partnership has been (and is) a successful one, that has borne fruit and created a platform from which a good, strong research culture can develop.

Cheryl Lombard
Manager: TRDP

As Dr Khotso Mokhele remarked in his message to you in the first issue of RE@DIT, "The NRF positions itself to be your partner and each of us, individually and collectively, must fulfil our respective roles".

At any higher education institution, and particularly one such as DIT, researchers and potential researchers will find themselves at different levels of development. Within the NRF there are various opportunities for the support of researchers, depending on their level of research development.

For those researchers still in a development trajectory two programmes provide support opportunities:

1. Technikon Research Development Programme (TRDP):

This is the primary support mechanism for research development at technikons. The programme aims to assist technikons to develop research in specific areas (Research Niche Areas) identified by the technikon itself. The programme supports individuals within these Research Niche Areas and at the same time assists the technikon in developing a research culture. For further information on the Research Niche Areas which have been approved at DIT please contact your Research Director.

In the meantime I strongly suggest that you read the TRDP Programme Framework (2002-2007) and the TRDP Manual, both of which are available from your research office.

2. Thuthuka

This programme is dedicated to the development of individual researchers in designated groups (black, women and young researchers), who (in the case of the technikons) do not fall within the Research Niche Areas of the TRDP. It comprises three sub-programmes (Women in Research; Rediba; and Researchers in Training). For further information please contact your Research Director or Dr Siphokazi Koyana, the Manager of Thuthuka (siphokazi@nrf.ac.za).

For those more established researchers, opportunities for support are available within the **Focus Area Programme**, which is constituted out of nine focus areas. Access to these programmes is open to all, and is therefore highly competitive. In practice this means that only those researchers who are already established are likely to be successful. Successful applicants will be funded for up to two years, followed by a further two cycles of up to two years. Successful applicants who currently have a valid NRF rating get funding for up to five years. Other support avenues include **International Science Liaison** and **THRIP**.

As previously stated, the NRF considers itself as an important partner with the DIT in developing the research capacity that the country needs. We note with encouragement that DIT has suggested a new vision statement which encompasses research and innovation.

continued on pg 4

The Future Looks Bright With Fulbright

Is your Department lacking academic or research human capacity? Do you want to enter the international arena of research and teaching through exchangeships and collaboration? Then the Fulbright Programme is waiting for your application.

Left to right: Mr Kiru Naidoo, Mr Hendrick Masemola, Ms Monica Joyi, Mr Deva Govindsamy and Professor Gansen Pillay.

At a breakfast/lunch meeting held on 4 March 2003 a delegation from Fulbright briefed staff and students of the DIT on the Fulbright Scholarship Programme. The delegation included Ms. Monica Joyi (Programme Manager Fulbright Commission), Mr Hendrick Masemola (Programme Officer Fulbright Commission) and Mr. Deva Govindsamy (Public Affairs Specialist Cultural Affairs, US Consulate in Durban).

Prof. Gansen Pillay who was in Washington for a TELP meeting took the opportunity to meet with Ms. Debra Egan, Assistant Director Africa/Western hemisphere for the Council for International Exchange of Scholars, to discuss the Fulbright programme.

The Department of Research Management records its appreciation to Ms. Zama Cele from the Public Affairs for co-ordinating this meeting.

International Funding Opportunity

The Volkswagen Foundation of Germany under the leadership of its Secretary General, Dr. W. Krull, hosted a workshop on the ***"Further conceptualization of a funding initiative focusing on new opportunities for joint research activities, symposia, and summer schools involving African and German researchers"***. The workshop was held in Pretoria from 27-29 January 2003 and was facilitated by Dr. K. Mohkele and Dr. R. Krieger of the NRF.

The objectives of the workshop were:

- To contribute to sustainable capacity building and strengthening the international competitiveness of African universities, technikons and research institutions;
- To increase co-operation and collaboration between African and German academic institutions;
- To focus on young, talented African academics; and
- To facilitate South-South dialogue.

Participant countries included South Africa, Namibia, Botswana and Zimbabwe. The VW Foundation is dedicated to the support of higher education and research. It funds research projects in path-breaking areas and provides assistance to academic institutions in order to improve the structural conditions for their work. Participants were requested to deliver a lecture on the current state of their discipline and/or wider research area they were working in with reference to higher education, research activities and co-operative international and interdisciplinary programs. Prof. Gansen Pillay of the DIT addressed the Foundation on ***"Biotechnology: current status and future directions"*** in which South Africa's national strategy for Biotechnology was discussed. The role of the NRF in stimulating research in Biotechnology over the past eight years was acknowledged and the possibilities for German-Southern African co-operation were explored. Other South Africa researchers included Prof. L. Nongxa [DVC (Research) WITS University], Prof. H.G Raubenheimer (University of Stellenbosch) and Prof. M.J. de Wit (UCT).

Researchers are invited to contact the Department of Research Management and Development for further information and to discuss the modalities for international collaboration.

Workshop for Research Administrators

On 19th February 2003, Ms. Ruby Govender (Finance), Mr. Andile Mvinjelwa (Finance) and Mr Sundeep Singh (Research Division) attended a workshop hosted by the NRF for research administrators at technikons and HBUs.

The purpose was to provide the administrators and others with detailed information on the NRF processes (relating to the capacity development programmes) and the expectations of NRF. In turn, administrators provided insight into the challenges they encounter at their respective institutions. Positive feedback was received from DIT participants.

The DIT congratulates the NRF in general, and Ms. Cheryl Lomabard (Manager TRDP) in particular, for having the foresight to host this workshop.

Further Funding From TELP

The DIT recently received a further financial boost to its USAID-based Tertiary Education Linkages Programme (TELP) with Savannah State University. Dr. Alex Kalueze, Professor of Water Engineering at SSU presented the DIT with a cheque of USD$ 65 000-00 for strengthening the capacities of the research programmes in Water Technology, Food Technology and Renewable Energy. Part of the grant will also include the provision of renewable energy infrastructure in Mozambique. The focus of investment for the said research programmes at the DIT would be to address the issue of sustainability for each research area. Funding for the DIT-SSU linkage programme would come to an end on 31 May 2003. To date, USAID has invested an amount of R 4.4 million for this linkage over the past five years.

Supervisory Skills and Research Management Workshop

As reported in a recent Monday Edition, the CSDTT organized two workshops in late February. Led by Professor Mouton, the workshops addressed the changing face of research and the challenges this poses to research supervision, the nature of supervision, the management of the supervisory process and the ethical issues in research supervision.

Researcher Profile

Dr S Moyo, Department of Mathematics, Durban Institute of Technology

Women in Mathematics

QN: Tell us about your PhD degree and work?
I completed my PhD in November 2001 and graduated the following year in April 2002 at the University of Natal, Durban. My PhD work was on Symmetry Properties of Ordinary Differential Equations, Noether's theorem and first integrals of Ordinary Differential Equations. Most of the work in the thesis had been published in three different international journals before the thesis could be submitted. This strategy normally avoids unnecessary complications and delays by examiners. Unfortunately, in my case the thesis sat in the faculty office for more than 14 weeks before they could send it out for examination, a situation I found unacceptable for any student to have to experience.

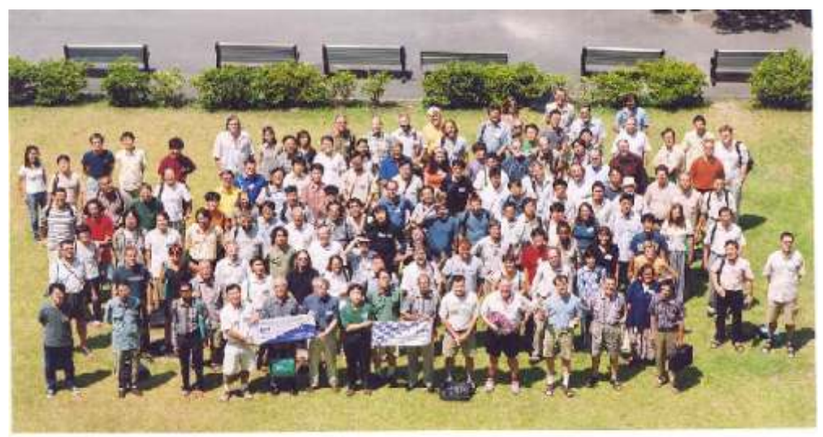
QN: What about the years leading to the PhD?
The years leading to the degree comprised a lot of work, adventure and experiences. The first part of my research work was done at the Laboratory for Geometry, Dynamical Systems and Cosmology (GEODYSYC), Department of Mathematics, University of the Aegean, Samos, Greece under the directorship of Professor S Cotsakis and the supervision of Professor P G L Leach. Professor P G L Leach is a distinguished researcher in this area of research and I have been very fortunate and blessed to have had him as my supervisor and to continue working with him. The supervision was not only aimed at improving one's mathematical skills and establishing international collaborations but included life survival skills, of which mountain climbing is the most memorable. The life survival skills I have always needed particularly being a female in a male dominated field. I completed my PhD while being a mother, full time worker and researcher. I never took study leave and that was a lot of work. Looking back now I am glad I managed to do all that during the four years of study. I am indebted to my family for the support in terms of baby sitting and a husband who encouraged me in my own independent approach.

QN: Tell us about your research work?
My research work is still based on the study of Differential Equations from a group theoretic point of view. The intimate connection between symmetry transformations and conservations laws is well known, inter alia in Classical and in Quantum Mechanics, where the momentum, angular momentum and Hamiltonian operators are the generators of rotations and translations in space and time, which leave the Hamiltonian of the system invariant. To this end Eugene P Wigner points out in his *Scientific Essays on Symmetries and Reflections* (M.I.T. Press 1967, p. 5) `It is now natural for us to try to derive laws of nature and to test their validity by means of the laws of invariance, rather than to derive the laws of invariance from what we believe to be the laws nature'. It is precisely this approach that we use in deducing the form¨ of the potential entering the time dependent Schrödinger equation from the symmetry of the underlying differential equation, instead of the usual procedure of solving the eigenvalue problem for the Hamiltonian operator with a given potential. In our work we have developed some elegant mathematical tools for exploring and revealing the underlying properties of second and third order ordinary differential equations, many of the type which arise in the areas of mathematical physics especially in Classical and Quantum mechanics. The power of symmetry solutions together with the Lie group theory applied to certain physical situations is so intriguing and it is my hope that our prospective graduate students will find the wonderful world of symmetries intriguing enough to keep them out of mischief! Part of this work entitled `A note on the construction of the Ermakov-Lewis invariant' was presented sometime in August at the NDDS2002 international conference in Kyoto, Japan. (See attached photograph.)

In some recent developments, we are using symmetry methods applied to the mathematical modeling of a tumor of the brain and this technique is also being extended to some ecological systems. It is my hope and those of my co-workers that we can have a breakthrough in this approach. We have also started applying these methods to some existing HIV models. The importance of this is that it helps us to look at different aspects of the problem, like the HIV impact on manpower development, HIV alternative treatments and the effect on the economy at large. The current work is to be presented at an international conference in Kiev-Ukraine where we expect to have some feedback from the other participants.

QN: What is your projection over the next five years in terms of your research?
My aim is to move from just theoretical work to do more applied research and involve more people in the research group. Right now we would like to have as many more interested parties join us through the Center for Research Systems under the directorship of Professor Kevin Duffy. I think the center has been a safe haven for me as through that association I have been able to have access to research equipment made available and it also makes it easier for one to obtain funds from either the NRF or the DIT if one is affiliated to some group. I must take this opportunity to thank Prof K Duffy for his support in this regard. I also look forward to having an acceptable teaching load with manageable student numbers per group of students. This semester has been particularly depressing as some of our students are forced to stand during lectures due to student number to classroom size ratios! In any event if one has to do good research work then one needs a realistic timetable which allows for creativity during normal working hours!

QN: Do you think one should start a family while doing a PhD?
I gave birth to my one and half year old daughter during the third year of PhD and working full time. I have also seen many young, single people with no families taking much longer to finish off their degrees. So in my view it is important that one remains focused and ask for extra help when necessary. In third world countries it is easy and cheaper to get baby sitters if family members are not available. It is a lot of work but in my interactions with some great women who have excelled academically as world renowned scientists and mothers I got great inspiration in this direction. Professor Eliza B Saitovitch says in her address at the women in Physics conference, *that if you have your baby during your PhD it is difficult. If you have a baby after the PhD it is still difficult so one has to find a way of managing in any situation*. In my case I am expecting to have my second baby after the PhD has been done but this is still difficult as there is still a lot of research work pending to be done in the midst of an average of about 23 lectures per week. Dr Franca Okeke, another successful female physicist said to me that in my pursuit for success I should remember to have a sibling at some stage and today I think my best research result was having the first baby !



New Directions in Dynamical Systems. Kyoto, Aug. 5-15. 2002