



**RAPID PRODUCT DEVELOPMENT
ASSOCIATION OF SOUTH AFRICA**

2014

Wallenberg Centre

Stellenbosch Institute for Advanced Study, STIAS

CHAIRMAN'S REPORT

6 November 2014

RAPDASA

Annual General Meeting

Table of Contents

Table of Contents

1. Overview	3
2. Management.....	4
3. RAPDASA Members.....	4
4. South African Roadmap for Additive Manufacturing	4
5. RAPDASA 2014 Conference.....	6
6. Industry Open Day	8
7. Sponsorship – Agents of the 3D revolution	9
8. RAPDASA Design Competition	10
9. RAPDASA Grants	11
10. RAPDASA Newsletter	12
11. Website	12
12. Uptake of 3D printing in Industry	12
a. New R&D facilities in South Africa	13
13. ASTM	14
14. GARPA	15
15. Financials.....	16
16. Conclusion.....	16

1. Overview

The Rapid Product Development Association of South Africa (RAPDASA) was formally founded at the First Annual General Meeting of the Association on 8 November 2000, at the CSIR Conference Centre in Pretoria. Since its inception, RAPDASA has been a cornerstone in the development of the Additive Manufacturing industry in South Africa. 2014 marks the 15th time that the Annual RAPDASA Conference will be presented, the premier event on the RAPDASA annual calendar. All indications are that this year's conference will also be the biggest event in RAPDASA's history.

During 2014 several new initiatives were successfully launched. RAPDASA hosted its first Industry Open day In September 2014. The open day attracted 166 registrations with 122 attendees. We also successfully launched the first Additive Manufacturing design competition. This initiative was launched to promote awareness of AM in an attempt to gauge South Africa's ability to design for AM. The competition was launched in two categories, and entries were evaluated by two independent expert panels. RAPDASA also launched a scholarship grant program, and published its first formal newsletter in September 2014.

The South African Additive Manufacturing Roadmap project took centre stage, which is the key strategic program for Additive Manufacturing in South Africa. Members from the RAPDASA Management Committee were instrumental in the development of the South African Additive Manufacturing Roadmap of which a first draft was issued for comments in October 2014. The draft Roadmap will also be presented for comment at the RAPDASA 2014 conference in Stellenbosch on 7 November 2014.

In 2014 RAPDASA again provided sponsorship to the Agents of the 3D revolution to support awareness of 3D printing in the design and artistic environment. The sponsorship supported a seminar on 3D printing that was presented as part of the Cape Town Design Expo presented in March 2014. The I2P lab from VUT arranged several technology demonstrations during the Expo.

RADASA's participation in the ASTM F42 work group continued during the past year. RAPDASA as industry association continued to circulate proposed standards to members for comments, as well as requesting members to advise on voting on the adoption of new standards.

2. Management

The RAPDASA management committee elected at the AGM on 31 October 2013 at the SANparks Golden Gate Hotel had management meetings in February 2014, April 2014, May 2014, July 2014 and in September 2014. Key agenda points covered at these meetings included the report back on RAPDASA's financial situation, the design competition, arrangements for an Industry Open day, the Additive Manufacturing Roadmap development initiative and progress with arrangement of the RAPDASA 2014 annual conference. These meetings were also used as feedback session on our involvement within ASTM Workgroup F42, as well as other initiatives we were busy with.

At the meeting of 26 February 2013, the following portfolios were assigned to the various RAPDASA management committee members:

- Chairperson - Mr. Hardus Greyling
- Vice Chairperson – Mr. Gerrie Booysen
- Secretary – Mrs. Maritha Theron
- Treasurer – Mr. David Bullock
- Conference Organisation – Prof. Dimitri Dimitrov
- Education and Competition – Dr. Kobus vd Walt
- Industry interaction and Outreach – Mr. Gerrie Booysen & Mr. Leslie Becker
- International standards and collaboration – Mr. Marius Vermeulen
- Special Projects – Hardus Greyling & Dr. Willie du Preez (Co-opted in February 2014)
- Electronic media & website - Kalenda Mutombo
- Publication and Newsletter – Dr. Thorsten Becker

3. RAPDASA Membership

All RAPDASA Conference participants receive a full year membership to the association.

4. South African Roadmap for Additive Manufacturing

Over the past year work continued on the development of a South African Additive Manufacturing Roadmap. As reported at the previous AGM at the RAPDASA 2013 conference the South African

Additive Manufacturing Roadmap project was commissioned by the DST in August 2013. The CSIR was contracted by the DST to manage the project. The project follows from a proposal which was tabled by Mr. Llanely Simpson at the RAPDASA AGM held in October 2012 at Kwa-Maritane. A resolution was accepted that RAPDDASA should adopt a more strategic leadership role for the development of Additive Manufacturing in South Africa, and the development of a South African Additive Manufacturing Roadmap was proposed via the CSIR to the DST.

It was agreed with DST that the purpose of the Roadmap project should be to develop a framework to guide public and private sector investment in AM Research, Development and Innovation for South Africa. The activities that supported the Roadmap development included:

- Consultative workshops with Industry, Science Councils and Universities active in AM (completed in Nov 2013)
- Desktop studies of international strategies and roadmaps for AM
- A detailed capability assessment of AM RDI in South Africa
- A desktop study of international developments and trends in AM
- The identification of local opportunities through interactions with experts in industry and R&D environment
- The development of specific key focus areas and plans based on the information gathered.

The workshops were arranged as half-day events and were presented in Cape Town, Durban and Johannesburg from 11-14 November 2013. Excluding the core team members, a total of 105 people representing industry, government, tertiary education institutions, research organisations and service providers participated in the stakeholder workshops. 50% of participants were from industry. All of the workshop inputs made were captured by the facilitator and are available in a separate document. The nature of the facilitation approach used resulted in a large number of ideas and some repetition within and between the workshops.

The Roadmap describes four priority focus areas and proposed programs that will support the development of these focus areas. The enabling environment to support the priority focus areas proposed in the Roadmap is also defined.

The draft Roadmap was completed in early October 2014, and was distributed to the core team that developed the Roadmap, as well as the RAPDASA Management Committee for feedback.

A draft of the Roadmap was also presented on 29 September 2014 to Mr. Garth Strachan, Chief Director Industrial Policy at **the dti** and his management team, as well as the Aeronautical Society Of South Africa (AeSSA) on 1 October 2014.

The draft Additive Manufacturing Roadmap was distributed to all RAPDASA Conference delegates, and will be presented at the RAPDASA conference on Friday 7 November at 11h10 at the STIAS convention centre.

Feedback from delegates will be considered and incorporated in the Roadmap, after which it will be presented to the DST for final approval. It is anticipated that the South African Additive Manufacturing Roadmap will be formally launched early in 2015.

The core team that have been working to develop the roadmap include:

- Mr. Hardus Greyling, Research Implementation Manager, CSIR National Laser Centre
- Prof Federico Sciammarella, Associate Professor, Northern Illinois University, Chicago, USA
- Prof Deon de Beer, Chief Director: Innovation and Technology Support at North West University
- Dr Neil Trollip, Strategic Research Manager, Materials Science and Manufacturing, CSIR
- Mr Marius Vermeulen, Project Leader: Additive Manufacturing, Aerosud Innovation and Training Centre
- Dr. Willie du Preez, Senior Researcher, Central University of Technology
- Dr Terry Wohlers, President: Wohlers Associates, Inc
- Mr. Francois Prinsloo, Contract R&D manager, CSIR National Laser Centre
- Mr. Garth Williams from the DST

5. RAPDASA 2014 Conference

The RAPDASA 2014 conference is the 15th Annual International conference presented by the RAPDASA. The 2014 conference is arranged by the Institute for Advanced Tooling in association with the Laboratory for Rapid Product Development from the Department of Industrial Engineering at the Stellenbosch University, with Professor Dimitri Dimitrov as the Conference Chair. The Conference theme is “Talent Driven Innovation”. The venue used for the conference is The Stellenbosch University’s Centre for Advanced Studies (STIAS), located in Stellenbosch - in the heart of the Winelands region.

The 2014 conference continued the trend established in the past couple of years, setting a new record for registrations. At the time of writing the report there was 130 registrations, compared to 122 at RAPDASA 2013. RAPDASA 2014 will be one of the largest RAPDASA conferences yet with 8 Plenary talks, 4 Session keynotes and 34 technical papers. The technical papers will be presented in two parallel sessions. Of the 130 registrations, approximately 23% are participants from industry, and 15.5% were international participants.

The following exhibitors are present at this year's conference:

- Stellenbosch University (IAT)
- Central University of Technology
- Materialise
- Rapid3D
- Vaal University of Technology

On behalf of RAPDASA and I would like to express my thanks to the generous sponsorships for this year's event and ensuring the success of the conference through their contributions:

- Department of Science and Technology
- National Research Foundation
- Fraunhofer Gesellschaft for Promotion of Applied Research
- National Tooling Initiative Programme
- SASOL
- Vaal University of Technology
- Aerosud Innovation & Training Centre
- Technology Innovation Agency (awaiting confirmation)
- Voxeljet
- Distell

Two pre-conference workshops were presented on 5 November 2014. The first workshop covered Tooling and Foundry applications and the second covered Medical applications of Additive Manufacturing, and was jointly hosted by the IAT, CUT and VUT in association with the Stellenbosch University's RPD Laboratory. The workshops covered research and development aspects of the selected application areas. 52 people registered for the Tooling and Foundry Applications workshop and 49 registered for the Medical Applications Workshop.

As in previous years selected papers from the RAPDASA 2014 conference will again be published in the South African Institute for Industrial Engineers. In 2014 an agreement was reached with Professor Corne Schutte, Chief Editor of SAJIE on a new process that will accelerate the review and publishing of selected RAPDASA papers in the SAJIE journal. Dr. Thorsten Becker from the Stellenbosch University has been appointed as Section Editor for the RAPDASA contributions for SAJIE. We express our appreciation to the South African Institute for Industrial Engineers for this opportunity offered to publish a select group of papers from the conference in the SAJIE Journal – an ISI accredited journal.

6. Industry Open Day

The first RAPDASA Industry Day was held at the CSIR on Thursday 11 September 2014. Due to the overwhelming response, a larger venue had to be arranged a few days before the event and the registrations were capped at 164.

A total of 122 guests registered on the day, with the bulk [60%] from industry. Many sectors of industry expressed keen interest in the event and government departments, such as DST and the DTI, were well-represented.

The programme was structured so as to highlight the diverse applications of Additive Manufacturing (AM). A total of 18 speakers presented case studies in consumer goods, tooling, foundries, medical implants and prosthetics, and the industrial sectors.

Those delegates who had time constraints could therefore attend only the sessions that they were interested in. A questionnaire was circulated to determine how and where AM was being used in industry. Many of the delegates attended the Open Day to learn more about AM and to see how they could incorporate AM in their environment.

The comments received from delegates proved that this concept was well-received and can become an annual event on the RAPDASA calendar.



INDUSTRY OPEN DAY

11 September 2014

CSIR Central Station
 Building 22
 CSIR Campus
 Meiring Naude Road
 Brummeria
 PRETORIA

See how AM can benefit your industrial sector

RAPDASA is hosting an industry open day to showcase the impact AM technology can have on different industrial sectors. The idea is not to focus on a specific machine manufacturer (OEM) but rather to focus on specific applications/solutions that AM can offer.

PROGRAMME			
08:30 – 09:00	Registration and refreshments		
09:00 – 09:15	Welcome and overview	RAPDASA – Hardus Greyling	
09:15 – 10:55	Consumer products and tooling	09:15 – 09:35	Industrial Designers:
		09:35 – 09:55	KM Product Design – Peter Dreyer
		09:55 – 10:15	Saab Grintek Defence – Paul du Plessis
			VUT – Leslie Becker
			Tooling:
		10:15 – 10:35	SUN – Philip Hugo
		10:35 – 10:55	PDS – Ludrick Barnard
10:55 – 11:20	Tea		
11:20 – 12:40	Foundries	11:20 – 11:40	RELY – Mark Hughes
		11:40 – 12:00	CASTCO – Yunus Turan
		12:00 – 12:20	VUT/NWU – David Mauchline
		12:20 – 12:40	UJ – Farouk Varachia
12:40 – 12:50	Discussion		
12:50 – 13:40	Lunch		
13:40 – 15:00	Medical implants and prosthetics	13:40 – 14:00	Southern Implants – Leith Cumming
		14:00 – 14:20	UCT ATTRI – Dr George Vicatos
		14:20 – 14:40	CRPM – Gerrie Booysen
		14:40 – 15:00	VUT– Philip van der Walt (Prosthetics)
15:00 – 16:10	Industrial sectors: <ul style="list-style-type: none"> • Aerospace • Aerodynamics • Defence 	15:00 – 15:20	Aerosud – Andries Uys
		15:20 – 15:40	CSIR - Charmaine Johnston
		15:40 – 16:00	Denel – Paul Cronje
16:00 – 16:10	Discussion & Closing		

7. Sponsorship – Agents of the 3D revolution

In March 2014 the RAPDASA Management Committee agreed to support the participation of the Agents of the 3D revolution’s participation in GUILD, the flagship event of the Cape Town World Design Capital 2014 program which was organised by the City of Cape Town in March 2014. The sponsorship amounted to R 25 000, and was utilised by the Agents of the 3D revolution to present a one day seminar to create awareness on the possibilities and potential of 3D printing in a design oriented audience. The Agents of the 3D revolution are a collective of the most innovative international 3D print designers and artists, shaping new technology to serve their creative needs. Dr. Michaella Janse van Vuuren founded the Agents of the 3d Revolution to make sure that no-one is left behind in what has been dubbed the 3rd Industrial Revolution. Together with curator, Mariapaola McGurk, they ensure that through exhibitions and seminars the public is given direct access and education in cutting edge technology.

The participation of the Agents of the 3D revolution at the GUILD included participation in the Design Exhibition, with works from Joshua Harker, Nervous System, Lionel T. Dean, Michaella Janse Van Vuuren, Jonathon Keep, Keith Brown and Geoffrey Mann on display. A seminar was also presented on 5 March 2014 which included a talk by Dr. Thorsten Becker on RAPDASA objectives and activities. Other presenters included Richard van As on Robohand & Robobeast, Sarel Havenga (Introduction to 3D Printing) Dr. Michaella Janse van Vuuren and Mariapaola McGurk (Exhibitions that engage and educate), Quinton Harley (Reprap Morgan) and a presentation on Thingking.

Technology demonstrations were arranged by the I2P labs at the Vaal University of Technology.

AGENTS OF THE 3D REVOLUTION
Through inspiration and education we can change our world

EXHIBITION
28th Feb - 9 March 2014

TALKS • LIVE 3D PRINTING DEMO
5 March 2014

11:00	Introduction to Agents of the 3D Revolution
11:40	Dr. Thorsten Bekker RAPDASA
12:20	Robohand
13:00	Lunch break
14:00	Introduction to 3D Printing
14:40	Michaella Janse van Vuuren
15:20	Mariapaola McGurk
16:00	Break
16:20	Thingking
17:00	Quinton Harley
17:40	Panel discussion

Reserve your seat: Email tracy@southernguild.co.za Subject: 3D Talks
Free with GUILD entrance ticket

Venue: GUILD, The Lookout V&A Waterfront, Cape Town

www.agentsofthe3drevolution.com @3dagents hello@agentsofthe3drevolution.com

GUILD INTERNATIONAL COLLECTIBLE DESIGN
TS Technology Station
SAMSUNG
RAPDASA Rapid Product Realization Association of South Africa

8. RAPDASA Design Competition

Early in August 2014, RAPDASA launched its first ever Additive Manufacturing (AM) design competition. This initiative was launched to promote awareness of AM and in an attempt to gauge South Africa's ability to design for AM. The competition was divided into two categories with the first category focused on a consumer product (a lampshade). The second category was focused on an industry part where the requirements were made available by Aerosud Aerospace Systems. The design specification called for the design of a cable stabilization arrow for a geo-survey aircraft.

Interest in the competition was unfortunately limited with only three entries received in each category. Adjudicating panels were set up for the two categories which consisted of industrial and graphic designers at VUT and a representative of Rapid3D for the lampshade category while the arrow category was judged by a panel at Aerosud.

The best two designs in each category were printed through AM with the lampshade category sponsored by Rapid3D while the stabilization arrow category was sponsored by Vaal University of Technology (VUT).

The finalists in the two categories were invited to attend the RAPDASA 2014 conference in Stellenbosch. Their registration to the conference was covered by RAPDASA as well as accommodation and travel to the value of R 10 000.

The winner and runner-up in each category will be announced at the prestigious gala event of the conference and cash prizes will awarded to the values of R5 000 and R3 000 respectively. The printed designs in each category were also handed over as additional prizes.



The poster features a large 3D '3D' logo at the top left, with '3' in grey and 'D' in red. To its right, the text 'PRINTING Design Competition' is written in a stylized, overlapping font. Below this, the text reads: 'Enter the first 3D Printing Design Competition presented by the Rapid Product Development Association of South Africa (RAPDASA)'. A red banner below this says 'THE TWO CATEGORIES ARE:'. The categories are listed as: '1 Design a lampshade' (with a white 3D printed lampshade) and '2 Design a cable stabilization arrow for a geo-survey aircraft' (with a blue and purple 3D printed arrow). The 'AEROSUD INNOVATION & TRAINING CENTRE' logo is visible below the arrow. At the bottom, the RAPDASA logo is shown with the text 'Rapid Product Development Association of South Africa'. A footer at the very bottom says 'Please visit www.rapdasa.org from 9 August for more information'. A vertical 'NOMILI' logo is on the right edge.

9. RAPDASA Grants

Another first for RAPDASA this year is the introduction of student grants for post-graduate students at traditional Universities as well as Universities of Technology. The aim of these grants is to promote research in the field of Additive Manufacturing and Rapid Product Development in the country. Successful candidates are awarded a once-off grant of R5000 (up to a maximum of five students per year). The grants may be used as contribution to student's tuition fees, living expenses or project costs. Only one student applied this year to the grant programme from Stellenbosch University and his application was approved by the RAPDASA management committee.

10. RAPDASA Newsletter

During 2014 RAPDASA also published the first RAPDASA Newsletter. This publication has as aim to provide news and information to the Additive Manufacturing community via the website, and our mailing list of RAPDASA members and interested parties. The compilation of such a newsletter takes a lot of hard work and perseverance, and cannot be successfully done by only one individual. Dr. Thorsten Becker did an excellent job to compile this first issue, and we hope to issue the newsletter on a more regular basis in 2015. We therefore urge members to provide news snippets and information to the RAPDASA management committee to ensure that our newsletter becomes a regular feature.



Welcome to the first issue of the RAPDASA newsletter. This publication is a product of the RAPDASA community and is designed to be an informative source about additive manufacturing in South Africa. Our goal in RAPDASA is to create

strategic links between academia, science councils and industry. It was started by volunteers, and is still being driven by individuals with a passion for innovative product development. This newsletter is aimed at everyone that has a passion for additive

manufacturing, to provide the resources and knowledge to utilise the technology and to keep the additive manufacturing community update regarding current trends in South Africa.

Annual RAPDASA Conference

The Annual International RAPDASA Conference is taking place for the fifteenth time, this year in Stellenbosch, and is of significant importance from both a purpose is a meeting point to generate innovative ideas and collaboration both locally and abroad. This year's theme is "talent driven innovation", aimed at expressing the precondition of engineering education and skills development for industrial growth in South Africa.

AM technologies have expanded vastly over the past 20 years, with more than 1000 systems currently in South Africa. With this the RAPDASA conference has become a hub for networking opportunities in the AM field. Many national and

international collaborative projects and partnerships have in fact been grown from the various RAPDASA conferences. A consequence of international participation is that the conference has become an international information source for AM developments in South Africa.

Having a fully peer reviewed conference and keeping at the same

"its main purpose is a meeting point to generate innovative ideas and collaboration both locally and

time its industrial relevance, this anniversary signifies a milestone in its own right. In this way it meets

its main objective to be a generator of innovative ideas and fruitful collaboration both locally and abroad. The theme of the conference captures this objective, expressing the precondition of engineering education and skills development for industrial growth.

This year's topics are:

- Rapid Product Development: Product Engineering, Design for Additive Manufacturing, Virtual Prototyping, Reverse Engineering, CAD/CAE, BioCAD, Data Validation and Data Security, Modelling and Simulation, Concurrent Engineering, Mass Customisation, Tooling Design.

~ 1 ~

www.rapdasa.org

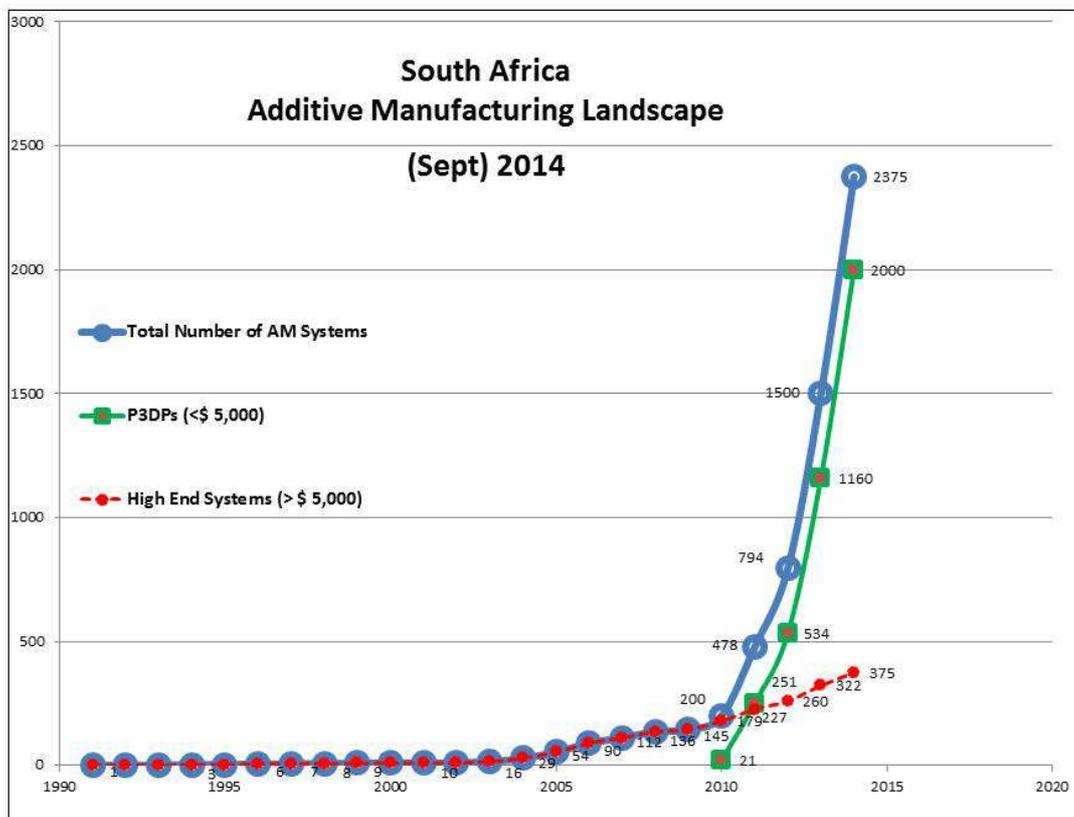
11. Website

During the past year the RAPDASA website was maintained and updated. The Conference arrangements and paper submissions were done via a special conference website created by Stellenbosch University to facilitate the paper review process.

12. Uptake of 3D printing in Industry

Prof Deon de Beer published his South African Industry update with a report on the number of 3D printers and Additive Manufacturing systems installed in South Africa. This information is based on interactions with suppliers of Additive Manufacturing equipment to South African end-users, as well as R&D Institutions. With permission of Prof Deon de Beer we can report the following:

Following a staggering increase in total machine sales since 2010, 2012 closed with approximately 800 machines available in SA with P3DPs accounting for two-thirds of these. The total number of AM machines grew 85% in 2013 with the percentage of entry level machines increasing to about 78%. By September 2014 the total number of AM machines were estimated at 2 375 of which 84% were entry level machines. A recent analysis has also revealed that AM platform investment in SA has exceeded US\$ 30 million, with approximately 67% spent in the last two years. Most of these machines do plastic or polymer part manufacturing, with only nine of them falling in the metal Additive Manufacturing category. Of these nine, six machines are used for Additive Manufacturing and able to produce metallic components from, amongst others, titanium powder. The other three systems are locally produced Direct Energy Deposition systems dedicated to refurbishment applications.



© - DJ De Beer – 21 September 2014

a. New R&D facilities in South Africa

Feedback on new R&D facilities received from R&D institutions included the following:

- VUT through Prof Deon de Beer received funding support from the NRF RISP program for the acquisitions of a Fortus 900 mc system. This acquisition makes the Stratasys advanced manufacturing platform at VUT complete.
- Funding was received to support the shoe project in the Vaal Triangle. This includes the acquisition of an EOS P760 selective laser sintering system, a new acquisition for South Africa.
- A simulation facility to support the foundry industry and support the adoption of AM by this important industry segment has been established at the VUT
- The CSIR NLC / Aerosud consortium was awarded a new contract from the DST to support Phase 2: Process Development and Optimisation of the Aeroswift program.

13. ASTM

“ASTM International, formerly known as the American Society for Testing and Materials (ASTM), is a globally recognized leader in the development and delivery of international voluntary consensus standards. ASTM Committee F42 on Additive Manufacturing Technologies was formed in 2009. F42 meets twice a year, usually in January and July, with about 70 members attending two days of technical meetings. All standards developed by F42 are published in the Annual Book of ASTM Standards, Volume 10.04.” Committee F42 is developing standards specifically for Additive Manufacturing.



RAPDASA has been an organisational member of ASTM committee F42 since 2010, with the goal of supporting the local Additive Manufacturing industry with regards to the development of standards. As a member, RAPDASA is contributing to these standards and have voting powers in the implementation of these standards.

RAPDASA aims to provide a link between its members and the activities of ASTM committee F42 to ensure that members have access to the standard development process, as well as the global direction and objectives of ASTM F42. The RAPDASA management committee have nominated a delegate to represent RAPDASA at all ASTM main committee meetings (twice a year). The delegate, Mr. Marius Vermeulen, is co-sponsored by RAPDASA and *Aerosud Innovation and Training Centre*. He is also member of the ASTM F42 executive committee.

The following standards / guides were circulated to RAPDASA members for either comments or voting during 2014:

- Doc F400000313001 - Specification For Additive Manufacturing Nickel Alloy (UNS N07718) with Powder Bed Fusion
- Doc F400000313002 - Specification For Additive Manufacturing Nickel Alloy (UNS N06625) with Powder Bed Fusion
- Doc F400000313003 - Revision Of F2924-2012A Specification for Additive Manufacturing Titanium-6 Aluminum-4 Vanadium with Powder Bed
- Doc F400000313004 - Revision Of F3001-2013 Specification for Additive Manufacturing Titanium-6 Aluminum-4 Vanadium ELI (Extra Low Interstitial) with Powder Bed Fusion
- WK27752: Standard Specification for Powder Bed Fusion of Plastic Materials
- Standard Guide for Characterizing Properties of Metal Powders
- Standard Practice/Guide for Design for Additive Manufacturing (Collaboration between ASTM F42 and ISO TC261)
- Doc F4200000314001 - Terminology for Additive Manufacturing Technologies (Collaboration between ISO and ASTM)

RAPDASA was also represented at the ASTM F42 main committee meetings held from 27-28 January, 2014 in West Conshohocken, USA.

14. GARPA

“The Global Alliance of Rapid (GARPA), and its annual meeting, the Global Summit, were formed to encourage the sharing of information on rapid prototyping and related subjects across international borders. As a part of this sharing, GARPA members from around the world participate in activities that include technical presentations at industry conferences, the publication of application case studies, business meetings, social events, and the formal and informal exchange of information. RAPDASA has been a member of GARPA since 2001. RAPDASA is allowed to nominate 5 members to become GARPA fellows. Present RAPDASA members who are nominated GARPA fellows are:

- Dr. Willie du Preez
- Prof. Dimitri Dimitrov
- Prof. Deon de Beer
- Mr. Gerrie Booysen
- Mr. Eugene Erforte

15. Financials

RAPDASA currently has a healthy financial status as per treasurer's report. On behalf of RAPDASA, I would especially like to thank the conference organisers for their commitment in maintaining this status. I also want to express my appreciation to our Treasurer, Mr. David Bullock for the diligent management of RAPDASA's finances. I want to express my appreciation for the seamless way in which he integrated with the Management Committee, and the innovative approach established to ease the invoicing and payment processes which are part of arranging such a large conference.

During 2015 we plan to review the constitution of RAPDASA to ensure that it is updated to reflect our present activities. With the assistance of the Treasurer we will also investigate the feasibility of formal registration of RAPDASA as a public benefit organisation with SARS.

16. Conclusion

The 2014 year was a very successful year for RAPDASA. Several new initiatives were developed and launched, with the aim to support and grow Additive Manufacturing in South Africa. Most notable of these were the design competition which has been planned for a number of years, but only realised in 2014. Our first Industry Open day to allow industry to share case studies and success stories in the utilisation of Additive Manufacturing processes was also very successful, and has set the benchmark for future events to introduce and discuss the advantages of AM for industry. Although the interest in the design competition was disappointing, the groundwork on how to organise and run the competition has been established. It is anticipated that the next design competition will be announced earlier in 2015 and will attract more interest.

The imminent completion of the Additive Manufacturing Roadmap will start a new phase for RAPDASA. Through the Additive Manufacturing Roadmap a structured framework will be available to support the growth of Additive Manufacturing in South Africa. In the roll-out of programs that will support the focus areas presented in the Roadmap, RAPDASA will have an important role to develop and support awareness programs in AM, to build networks in AM, and to support the objectives as articulated in the proposed Roadmap document.

Additive Manufacturing and the adoption of the technology by industry as a new manufacturing technology is on the increase. The fact that smaller and more affordable systems are now readily available makes the acquisition of the technology easier for smaller companies and individuals. The

exponential growth in the lower end machines continues, and R&D activities based on the high end machine platforms available in the country are increasing. This is evident from the standard of the papers received for the RAPDASA 2014 conference. Strong collaboration networks in Additive Manufacturing are also developing in South Africa. During 2014 R&D institutions worked together to define a collaborative R&D program to support Additive Manufacturing. The collaborative program will be used as the first implementation program of the Additive Manufacturing Roadmap.

Our role as industry representative at ASTM allows our local research and development engineers to make inputs into the new standards that will govern additive manufacturing in future. RAPDASA's representative at ASTM's F42 workgroup, Mr. Marius Vermeulen, has diligently acted as our link to ASTM. He plays an important role as link to ASTM, and continues to serve as a member of the Executive Committee of the F42 workgroup.

I want to thank my fellow management committee members for the hard work that they have put in over the past year, for the additional hours, the dedication and commitment despite of increasing challenges from each of their fulltime positions! I am truly impressed with the enthusiasm that the management team has displayed, with the many new initiatives launched and successfully completed during the past year. I also want to thank them for their valuable contributions to this chairmen's report.

I want to thank the organisers of our RAPDASA 2014 Conference for the excellent and well organised event that they have arranged on our behalf. On behalf of RAPDASA I also want to extend our thanks and appreciation to all the sponsors of the Conference, as well as all the delegates, local and international who has taken the time to register, and to travel to, attend and contribute to the Conference.

We are looking forward to 2015 with eager anticipation, to monitor progress on the key initiatives we are involved in, and to further expand and grow additive manufacturing in the South African industry.

Yours sincerely



Hardus Greyling

RAPDASA Management Committee

Chairman