



# CSIR

Touching lives through innovation

## Application Manual

**2023 CSIR Photonics Centre Rental Pool Programme (RPP)**

**August 2022**

**Supported by the**



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Department:  
Science and Innovation  
**REPUBLIC OF SOUTH AFRICA**

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## **PART 1: Introduction**

### **1.1 Purpose**

This manual provides information on opportunities for funding within the CSIR Photonics Centre's Rental Pool Programme Grant Scheme.

The manual is intended to be an easy reference guide to the CSIR Photonics Centre Rental Pool Programme Grant Scheme and to assist potential participants in accessing the available funding. It does not, however, constitute a complete set of policy, procedure or systems supporting the programme.

### **1.2 Background**

At the establishment of the CSIR Photonics Centre in 2000, the Centre started a laser equipment access program which is now funded by the Department of Science and Innovation. The Rental Pool Program provides Higher Educational Institutions (HEI) in South Africa the opportunity to access a large number of laser systems, laser diagnostic equipment and laser laboratories available at or from the CSIR Photonics Centre. During the years that followed the equipment program grew, and the equipment base expanded through careful management of funding allocated to expand and maintain the equipment base of the program.

The Department of Science and Innovation has again made funding available which will be used to support HEI research specifically within the multi-disciplinary laser environment in 2023. These funds will be managed by the CSIR Photonics Centre.

### **1.3 Strategic intent**

The purpose of the programme is to support laser- and laser-based application research in South Africa, and to develop, encourage and support a unique programme of building and growing a sustainable corps of expert researchers in South Africa utilising laser technology in their research programs. The objectives of the program are:

- To stimulate and support research at South African Higher Educational Institutions (HEI) in laser-related research, in all research fields.
- To render technical and scientific support to RPP participants at HEI.
- To support the development of a next generation of scientists/engineers to rejuvenate and strengthen the ageing South African scientific and engineering community.
- To encourage research collaboration.
- To effectively manage and expand the CSIR Photonics Centre Rental Pool Programme (RPP).

## **PART 2: Call, Eligibility, Funding and Time lines**

### **2.1 Call for Applications**

The CSIR Photonics Centre Rental Pool Program call is facilitated through the NRF online application system. Call documents are published on the NRF website, and applications are submitted electronically on the NRF Online Submission System at <https://nrfsubmission.nrf.ac.za>.

During 2022 the NRF migrated to a new online platform to support and accommodate research grant funding management. This platform is called NRF Connect, and is now used extensively for all NRF funded R&D support programs.

The NRF is accommodating the CSIR and is continuing to host the call for new applications to the CSIR Rental Pool Program for 2023, as well as the CSIR Rental Pool Program Annual Progress Reports for projects funded in 2022 using the NRF Online Submission System.

It is important to note that whilst we are negotiating with the NRF to continue to use the NRF platforms, 2023 will be a transitional year, and researcher applying to the CSIR Photonics Centre's Rental Pool Program will have to use both platforms to be able to submit a full new proposals for funding support from 2023 onwards. The following steps are required:

#### **For New Applications**

- Researchers need to first synchronize (only for first time users of NRF Connect that are registered on the NRF Online Submission System) and update their CVs in NRF Connect, since the CV module was disabled in the NRF Online Submission system. Use <https://nrfconnect.nrf.ac.za/>. Once the CV is complete, a PDF must be generated and uploaded to the application on the NRF Online Submission System.
- Once the Principal Investigator's CV is updated, the applicants may continue and submit a new application in the NRF Online Submission System in response to the CSIR Photonics Centre's Rental Pool Program call for 2023. Use <https://nrfsubmission.nrf.ac.za/>

#### **For Annual Progress Report Submissions**

- Similarly, present grant holders that are preparing their RPP Annual Progress Reports for 2022 need to first synchronize (only for first time users of NRF Connect that are registered on the NRF Online Submission System) and update their CVs in NRF Connect, since the CV module was disabled in the NRF Online Submission system. Use <https://nrfconnect.nrf.ac.za/>. Once the CV is complete, a PDF must be generated and uploaded to the application on the NRF Online Submission System.

- Once the Principal Investigator's CV is updated, the applicants may continue and submit the Annual Progress Report in the NRF Online submission system in response to the CSIR Photonics Centre's Rental Pool Program call for 2023. A pre-populated template for each grant holder's project is available using the using the original RPP Application reference number. Use <https://nrfs submission.nrf.ac.za/>
- For further assistance on this process applicants and grant holders are welcome to contact the CSIR Photonics Centre for assistance ( [tiduplooy@csir.co.za](mailto:tiduplooy@csir.co.za) )

Proposals submitted in the NRF Online submission system will be routed automatically by the NRF submission system to the institution's research office for endorsement, before forwarding it to the CSIR Photonics Centre for evaluation.

The scientific and technical contents of the project will be refereed through a peer review mechanism to assess quality of the research plan proposed, human capital development potential and alignment with national priorities. Applications must be substantial and comprehensive to allow proper assessment of the research proposed.

Applicants are encouraged to approach the CSIR Photonics Centre for assistance with completion of the application, specifically with reference to gathering information on equipment availability, pricing and suitability of equipment.

For applications to access the high-power laser equipment at the CSIR Photonics Centre's Laser Enabled Manufacturing group, preference will be given to proposals aligned with the Photonics Centre's research program in Additive Manufacturing and Laser Surface Engineering. More information available from the CSIR.

## 2.2 Funding

The program allows access to equipment at the CSIR Photonics Centre facilities and the rental of equipment for use at the researcher's university laboratories. The program also makes provision for the upgrading of existing equipment in order to ensure suitability for the proposed project. In summary, the grant funds the following activities:

- Preparation and upgrade of equipment approved within the program;
- Maintenance of equipment supported by the RPP;
- Delivery, setup and return cost of equipment where necessary;
- Technical or scientific support from the CSIR Photonics Centre staff;
- Insurance costs for equipment while at the HEI;
- Travel and accommodation costs **limited to** traveling to CSIR Photonics Centre laboratories or facilities at HEIs where CSIR RPP equipment are hosted to access equipment in approved research projects;
- Accommodation and travel support for attendance of annual RPP Review Meeting (if applicable). Grant holders and their students who are involved in the supported project are required to attend this compulsory reporting session;

- New laser or ancillary equipment required to support research activities;
- Consumables required for research activities, **limited** to optics and other laser-based consumables to support the research project proposed.

Each project will be eligible for new ancillary equipment (smaller diagnostic equipment) to a maximum value of R75 000 and laser-related consumables to a maximum value of R75 000, **subject to the availability of funding**. Consumables will remain the property of the grant holder's institution and will assist in establishing in-house laser infrastructure.

All of the abovementioned costs will contribute to form the budget of each grant holder based on the equipment they request for their laboratories.

### 2.3 Time line

The time lines for the CSIR Photonics Centre Rental Pool Programme Grant Scheme call is shown in **Table 1**. Also listed in this table are the expected dates for the outcomes announcement of the applications.

CALL	OPEN	CLOSE	OUTCOMES ANNOUNCEMENT
2023	19 September 2022	28 October 2022	31 March 2023

**Table 1: Call & outcomes announcement**

\*See call document for actual due date.

### 2.4 Eligibility criteria

Researchers from all higher education institutions (public universities) may participate in the CSIR Photonics Centre Rental Pool Program Grant Scheme.

The programme considers applications from researchers who are:

- Involved in laser-based research in any field in natural science, engineering and health sciences;
- Hold at least a Masters degree and have a reasonable research track record.
- Employed at South African Higher Education Institutions on a full-time or full-time contract basis. If on contract basis, the length of the contract should at least be for the duration of the research project applied for and be clearly indicated in the application.

Participation of post-graduate students (Doctoral and Masters students as key drivers), registered at a recognised South African higher education institution is of paramount importance as well as the collaborations with other researchers based at the applicant's institution and other institutions. These should be stated clearly by the researcher in the

application. Although student involvement is a priority, the primary motivation for the research grant is to **address a specific research question**. Proposals which request funding support merely for training of students will be disqualified.

## 2.5 Duration of the Grant

Researchers can apply for a multi-year project, with maximum duration of 3 years.

Contracting with successful applicants happens on a yearly basis from 1 April to 31 March of the next year, and continuation funding for a second or a third year for approved projects can only be considered based on the submission of a comprehensive annual progress report at the end of each year of the project. Continuation is subject to the progress reported in the Annual Progress Report, the quality of the Annual Progress Report and the presentation made at the Grant Holders feedback meeting, usually arranged towards the end of each funding year, usually around end January / beginning February of the year of funding.

Continuation beyond the first three years can be considered if a new funding application is submitted to support a continued research program.

## 2.6 Assessment process

All applications received by the CSIR Photonics Centre will be submitted to an independent review panel appointed by the CSIR Photonics Centre. The purpose of the review panel is to provide an assessment of the quality of the proposals received, and to make a recommendation to the CSIR Photonics Centre on whether proposals should be funded. The panel will consist of experts from industry, universities and international members. The assessment will primarily focus on scientific merit, capacity building, output, and impact as presented in the proposal. **Applicants are encouraged to ensure all the necessary information is captured in the proposal that is required for the review panel to do a fair assessment of the proposed work.**

Continuation applications will also be assessed on progress; hence progress reports submitted to the CSIR Photonics Centre will form part of the application and evaluation process.

It will be expected from applicants to present new applications to the Rental Pool Program to present their research proposal to the independent review panel during February 2023. These presentation usually happens through a virtual platform such as MsTeams, however, where necessary the CSIR will provide mobility support to applicants that made the short list for projects to be reviewed by the independent review panel.

The following aspects are important to consider when submitting a RPP application.

## 2.6.1 Quality of the RPP application

*Applicants are strongly discouraged, and warned, not to commit plagiarism in the preparation of CSIR Rental Pool Program project proposals, or in the reporting of work completed. The review process has in the recent past picked up an increase in this very serious transgression. The Merriam-Webster dictionary defines **Plagiarize** as “to steal and pass off (the ideas or words of another) as one's own : use (another's production) without crediting the source”<sup>1</sup>. Applications which are found to contain plagiarized passages will immediately be disqualified.*

*Applicants are STRONGLY discouraged to copy and paste large section of text from previous applications or progress reports. The peer review panel notices this and feel that this is an indication that applicants are not respecting the peer review process. Applicants and document authors are encouraged to rather keep the inputs and discussion short and relevant to the section that they are completing, without the necessity to generate large amounts of text.*

*Applicants are also encouraged to follow the instructions as provided in the proposal or the annual progress report meticulously, to ensure that the review panel has the correct information available when assessing the information provided. Assessment of new applications of progress report will only be based on the written text as found in the proposal or annual progress report, as supported by the presentation made on the new applicatioOn or on the progress reported.*

## 2.6.2 Management plan

The management plan submitted as part of the application must be a clear execution-able plan for the project. The following aspects needs to be addressed and should be clear when reviewing the Management plan:

- The plan must include defined major project activities that will be executed as part of the project plan.
- For each activity, a start and end date must be provided.
- Resources (collaborators, team members, students and equipment) needs to be assigned to each of the activities defined.
- Each of the activities should also have a clearly defined deliverable.
- It is a requirement that a detailed Gantt chart, which corresponds to the management plan is submitted as part of the application.

The management plan should also address any equipment related activities, including specific maintenance requirements that needs to be highlighted to the CSIR, as well as contingency planning around equipment breakdowns. The CSIR will take responsibility for major repair and maintenance tasks, but it is expected from the grant holder and the institutions to plan and provide routine maintenance services on equipment provided as part of the grant.



### 2.6.3 Scientific Merit

This section should clearly articulate the main research question that the proposed work intends to address. The section must support and reflect a detailed description of the scientific background and demonstrate through the proposed research a high level of scientific and technical excellence. Scientific outputs and impact need to be qualified.

In progress reports, Grant holders and applicants are encouraged to also list publications which have been submitted, but not yet accepted for publication to provide the review panel with an accurate view of progress on the project.

### 2.6.4 Collaborations

The proposal format require the applicant to provide detailed information on collaborations that will support the proposed project. A list of collaborators should be included, which clearly articulates the contribution of each of the collaborators to the program. The information provided must be presented in such a way that will allow reviewers to assess the expertise and experience of the listed collaborators.

It is important to also list all the members of the research team who constitute this collaboration. Be sure to highlight the PI track record, staff involvement, student involvement, post docs, technical support and external collaborations (institutional, regionally, nationally and internationally).

### 2.6.5 HR Development

In the section on HR development the applicant needs to list all students that will work on the project. It is important **and compulsory** to identify the main supervisor and co-supervisor if applicable, as well as provide the thesis or research project title on which the student is working. Generic thesis titles or research project titles are not acceptable.

Attention should be given to accurately reflect on student demographics. It is expected of the applicant to demonstrate that this project will actively seek to involve South African black and female students.

### 2.6.6 Relevance, Impact and Commercialisation

The proposal should clearly articulate the scientific, social, economic and environmental relevance and impact of the proposed work.

The proposal should provide information on the PI's plan for commercialisation for the research undertaken. The proposal should provide a description of a commercialisation

route, as well as identify possible commercialisation partners. Even if there are no formal commercialisation strategy or commercialisation plan for the proposed work, applicants are encouraged to offer some evidence that commercialisation of the technology is being considered. This evidence can be direct, or indirect or even anecdotal evidence indicating that there is some consideration for commercialisation of the technology. Leaving this section of the proposal blank is not acceptable.

## 2.7 Laser safety

Laser safety is of utmost importance. The proposal should clearly nominate a Laser Safety Officer, and plans around laser safety should be included in the management plan section of the proposal. For successful applicants, it will be expected that

- A permanent member of the research team be assigned the role of laser safety officer;
- The nominated laser safety officer needs to be trained;
- All users of the equipment, including students, are provided with laser safety training.

It is expected that laboratories at universities that house CSIR owned equipment is carefully managed from a Safety, Health and Environmental perspective, and that risk assessments and risk monitoring practices are established, up to date and managed.

## 2.8 Proposal assessment criteria

Assessment criteria will be used to maintain consistency during assessment of research proposals, each criterion is assigned a weight (see [Table 2](#)).

**For New applications:**

Criterion	Details	Weight
<b>Management Plan 15%</b>	Feasibility & Efficiency of management Plan	10%
	Presentation of the proposal	5%
<b>Scientific Merit 40%</b>	Scientific/technical excellence	15%
	Scientific impact/outputs	25%
<b>HR Development 25%</b>	Research students and Post-Doctoral Fellows	5%
	Black & female students	15%
	PI track record	5%
<b>Collaboration network 10%</b>	National, regional and intra-institutional network	6%
	International network	4%
<b>Relevance &amp; Impact 10%</b>	Scientific, Social, Economic and Environmental Impact	4%
	Commercialisation plan	6%

**Table 2: Assessment criteria**

**For Annual Progress Reports:**

<b>Criterion</b>	<b>Details</b>	<b>Weight</b>
<b>Project Progress</b> 15%	Project Progress with regards to original or amended project schedule	10%
	Quality of the Progress report and Quality of the Progress report presentation.	5%
<b>Scientific Merit</b> 40%	Scientific/technical excellence	15%
	Scientific impact/outputs	25%
<b>HR Development</b> 25%	Research students and Post-Doctoral Fellows	5%
	Black & female students	15%
	PI track record	5%
<b>Collaboration network</b> 10%	National, regional and intra-institutional network	6%
	International network	4%
<b>Relevance &amp; Impact</b> 10%	Scientific, Social, Economic and Environmental Impact	4%
	Commercialisation plan	6%

**Table 3: Assessment criteria**

Based on the recommendations from the review panel, the CSIR Photonics Centre will do budget allocations, rank the proposals received and make a decision on the projects which will be funded in the next funding cycle.

**2.9 General comments**

It is important that proposals submitted are concise, and only provide information relevant to what is requested in the proposal template. Information provided needs however to be comprehensive, to allow the reviewers an opportunity to accurately assess the potential of the proposal. The review team will only assess proposals on what is written in the proposal / annual progress document, as supported by the presentation made by the applicant of the grant holder.

Applicants and grant holders should also respect the review process, and the CSIR appointed review panel. Applicants and grant holders are encouraged to not copy and paste sections from one part of the proposal or annual progress report to another.

**PART 3: MANAGEMENT OF GRANT AND EQUIPMENT****3.1 Contracting**

A CSIR Rental Pool Grant contract will be established that contains the clauses and requirements for the management of the grant. The contract addresses responsibilities, intellectual property issues, ownership of the equipment, as well as the financial

arrangements associated with the project. The contract is between the CSIR Photonics Centre and the host institution of the applicant.

The contract will be an annual contract, and will be renewed annually through a new contract of a contract amendment for the funding allocation in subsequent years **subject to the submission of an annual progress report, as well as a favorable review of the progress report.**

### **3.2 Reporting and use of equipment**

On accepting the award (signing the contract), the grant-holder will be required to deliver on the annual research plan that formed part of the accepted application. An annual review meeting is scheduled where all grant holders are required to report on progress. Attendance of this meeting is compulsory.

At the end of the calendar year the grant-holder will be required to prepare and submit an Annual Progress Report on the project to the CSIR Photonics Centre. The annual report must address project progress, delivery on milestones, project outputs and outcomes as presented in the research plan. In instances where the original project application was a multi-year proposal, the annual progress report will be used in an evaluation process to determine whether the project will continue in the next FY.

### **3.3 Payment of Grants**

The CSIR Photonics Centre will take responsibility for the acquisition of new equipment, shipment of equipment to universities, installation and maintenance of the equipment supplied under the agreement. Claims for payments of travel costs, consumables, and small auxiliary equipment approved as part of the project should be submitted to the CSIR Photonics Centre for payment. Claims should be submitted as an invoice, with associated proof of expenses for attention of Mr. Thomas du Plooy ([tiduplooy@csir.co.za](mailto:tiduplooy@csir.co.za)).

Invoices for payments should be addressed to:  
The CSIR Photonics Centre  
PO Box 395  
Pretoria  
0001.

All invoices should reflect the CSIR's VAT no. 4470114283

All invoices should also reflect the unique reference number assigned to the project, and available on the Rental Pool Grant contract, or from the CSIR Photonics Centre.

**No payments will be processed unless proof of expenses accompanies the invoice submitted to the CSIR Photonics Centre.**

### 3.4 Assistance

Should you require clarification on any of the processes, criteria or plans presented in this manual please do not hesitate to contact Thomas du Plooy at 012 841 3511 or 082 443 1128, email [nlcrentalpool@csir.co.za](mailto:nlcrentalpool@csir.co.za)

## Appendix 1

A list of equipment accessible at the CSIR Photonics Centre facility.

Nd: YAG Pulsed Lasers
Nd: YAG Laser Ablation system for material processing applications (DML40S - Deckel Maho Gildemeister)
5kW IPG fibre Laser System with Robot manipulation (For laser material processing)
CW CO <sub>2</sub> Lasers (up to 100W)
LENS 850 R Additive Manufacturing system
5kW CO <sub>2</sub> Laser System (For laser materials processing)
Laser systems for Spectroscopy
Low output visible lasers
Low output near infrared lasers
Clark Femto Second Laser System (1mJ, 1 kHz)

## Appendix 2

CSIR Photonics Centre research focus areas in 2023/2024.

Biophotonics research, with a focus on point of care diagnostics for HIV, Malaria, TB and other diseases.
Solid state laser development research (1 and 2 micron source development)
Laser materials processing research (Additive Manufacturing, Laser welding/cladding, Laser-based Surface Engineering Technologies)