

# CRC Proposal Template

Lukas C. Bossert

Version: Calliades (0.9.0)

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## 1 Remark

This repository contains the script and files to generate a DFG funding proposal for a Collaborative Research Centre (CRC). It has been developed for the CRC1382, second funding period (also works for CRCs in the first funding period). The CRC 1382 consists of two sets of research projects (A,B) and a set of service/mgk/administrative projects (Q). All the forms regarding a CRC provided by the DFG are online. Relevant for the second funding period is form 60.200.

This template is published under the DOI 10.18154/RWTH-2022-10554.

## 2 How to use the template / Requirements

This template uses  $\LaTeX$ , R and Bash. It is strongly recommended to start compiling using the makefile with e.g. `make` to get the PDF of the proposal.

### 2.1 Structure of the repository, files and folders

- `bib/`: all bibliography files
- `content/`: all files which are part of the actual content of the proposal. e.g all project textfiles.
- `data/`: the folder contains `crcResearchAreas.csv` which is filled using the command e.g. `make prepare` or explicitly `make research-areas`.
- `figures`: folder contains all figures of the projects. As a best practice we recommend a naming classification like `<PROJECT-ID>-figure-<integer>.suffix`.
- `img`: folder can be used for logo files etc.
- `metadata`: if you collect all database entries in specific external files, they are placed in this folder.
- `plots`: folder contains scripts (R) and image files of all network plots.
- `preamble`: all files for the proposal and CV setup. They are loaded in a specific order:
  - `base.tex`: basic things for setting up a common ground.
  - `base-proposal.tex` OR `base-cv.tex`: specific things for the proposal or cv.

- `custom.tex`: customized things or re-newed settings.
- `templates`: just for the repository to create a webpage.

## 2.2 Generating files using CI/CD

You can create all files using a CI/CD workflow. This is displayed in the figure below. In the figure we assume to write a proposal for CRC1382 therefore some files are named accordingly.

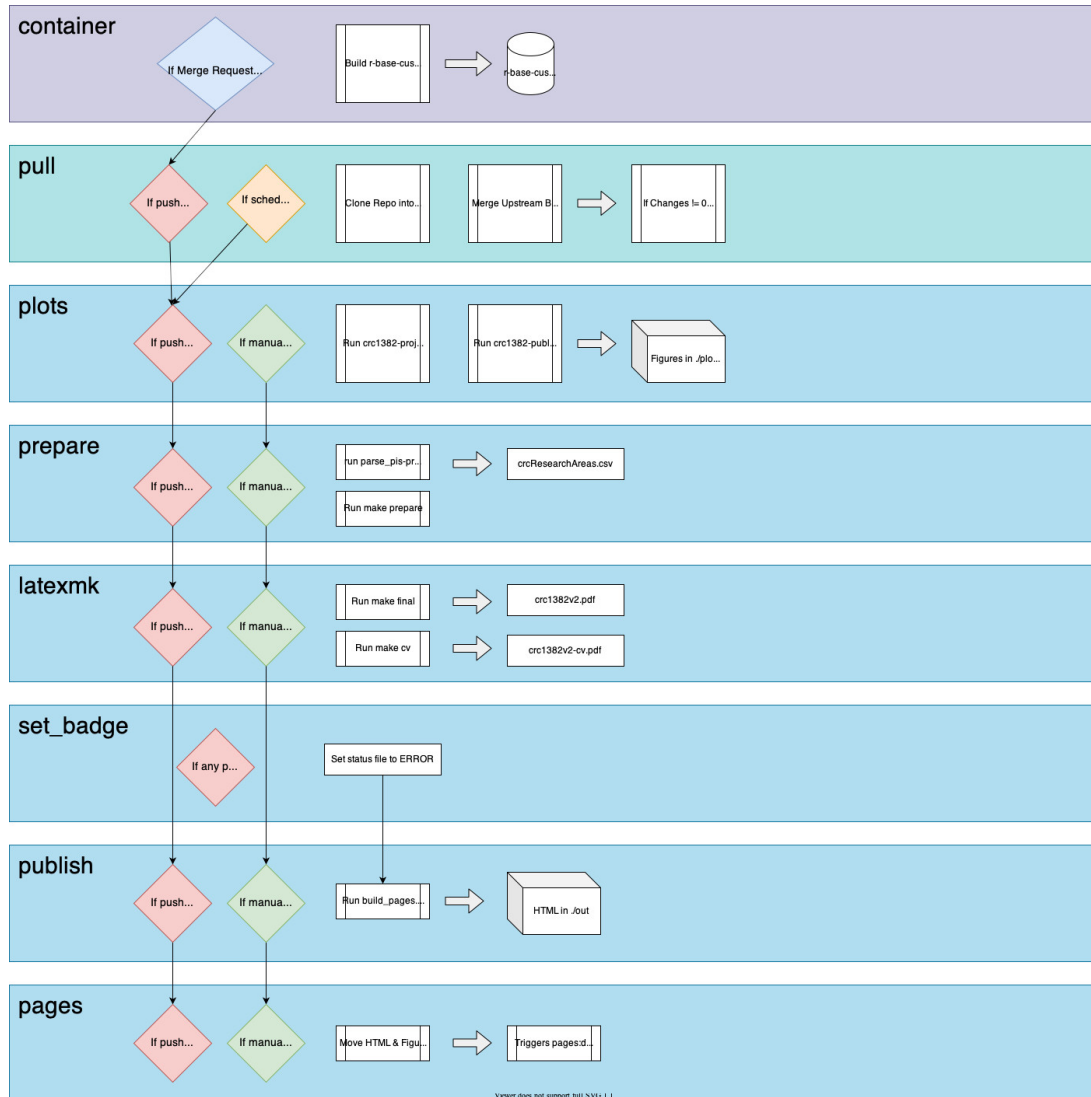


Figure 1: Possible workflow for using CI/CD.

## 3 General Information

### 3.1 Quick Reference and Overview

Note! The signs `<>` are not meant to be written they indicate a placeholder.

If you like to place some references in the project text, read the following part. You will learn how to reference to ...

### 3.1.1 Project

- one project: `\crcProject{<ID>}` (Fallback: `\crcproject`); e.g. `\crcProject{B06}` -> **B06** There is also an optional argument you can insert any text instead of the project number; e.g. `\crcProject{B06}[Project B06]` -> **Project B06**
- many projects: `\crcProjects{<ID>,<ID>}` (Fallback: `\crcprojects`); e.g. `\crcProjects{B06,Q02}` -> **B06, Q02**

The project's number is colored according to the color of the project series and is linked to the project's entry in the PDF.

### 3.1.2 PI

- one PI: `\crcPI{<ID>}` (Fallback: `\crcpi`); e.g. `\crcPI{pabst}` -> **Pabst** There is also an optional argument you can insert any text instead of the PI name; e.g. `\crcPI{pabst}[Pabst lab] = --> *Pabst lab*` With `=\crcPI*{<ID>}` you get **Firstname Name** of the PI.

The name of the PI or the substitution are linked to the (first) entry of the PI's project.

- many PIs: `\crcPIs{<ID>,<ID>}` (Fallback: `\crcpis`); e.g. `\crcPIs{pabst,hornef}` -> **Pabst, Hornef**

### 3.1.3 Project and PI

- one project with its PIs: `\crcProPI{<project-ID>}` (Fallback: `\crcpropi`, `\crcProPi`); e.g. `=\crcProPI{B06}` -> **B06 (Pabst)**
- many project with their PIs: `\crcProPIs{<project-ID>}` (Fallback: `\crcpropis`, `\crcProPis`); e.g. `=\crcProPIs{B06,Q03}` -> **B06 (Pabst), Q03 (Liedtke/Hornef)**

### 3.1.4 Publications

For referencing a publication you need the bibtex-key which you find in the file `bib/crc1382.bib`. For example

```
1 @article{bibtex-key,  
2   author    = {Lastname, firstname},  
3   title     = {title},  
4   journaltitle = {journaltitle},  
5   date      = {YYYY}  
6 }
```

In the text you can reference a publication with

```
1 \autocite{<bibtex-key>}
```

and you can add as many bibtex-keys as you want:

```
1 \autocite{<bibtex-key>,<bibtex-key>,<bibtex-key>,...}
```

The references are shown in parentheses.

## 3.2 Workpackage and Aims

The aims are written in the environment `aims` as the following example shows.

```
1 \begin{aims}  
2   \crcAimItem{<ID>} Text ...  
3   \crcAimItem{<ID>} Text ...  
4   \crcAimItem{<ID>} Text ...  
5 \end{aims}
```

You can refer to one of the aims above using `\crcAim{<ID>}`; e.g. `\crcAim{1}` → **Aim 1**. The numbers for `<ID>` can be anything. The numbers are generated automatically.

The workpackages are pre-written in the proposal and each workpackage is introduced with the following code:

```
1 \crcWorkPackage{<ID>}{
2   name      = {<Text>}, %optional (leave empty)
3   nameShort = {<Text>}, % used for Gantt-chart
4   periodStart= <N>,
5   periodEnd  = <N>,
6   color      = {blue|green|crosshatch|checkerboard|greenblue|red|yellow},
7 }
```

You can reference to a workpackage with `\crcWP{<ID>}` (Fallback: `\crcwp`); e.g. `\crcWP{WP1c}` → **WP N**. If you want to reference to a workpackage of another project you need to do it manually and add the project ID: `\cref{<ProjectID>-<WP-ID>}`; e.g. `\cref{B06-WP1}`.

You can choose any color you like and specify its meaning in the square brackets of the code `\crcGanttPlot{<ID>}[<Further explanations of e.g. colors used>]`.

The numbers refer to the quarters of the applied funding period. For further information see below.

### 3.3 Insert images

For the images in the proposal we use the command `\hvFloat` provided by the same named package. This enables us to place images more freely on the page and quickly change the position of the caption e.g. from below to the side.

The default command is this:

```
1 \hvFloat[<specifications>]
2   {figure}
3   {\includegraphics[<specifications>]{<filename>}}
4   {<caption>}
5   {fig:<label>}
```

For further specifications please consult the documentation.

As a best practice for naming figures use this schema: `fig:<PROJECT-ID>-figure-<number>`, e.g. "fig:A01-figure-01", then you can reference the table with `\cref{fig:A01-figure-01}`.

### 3.4 Insert tables

We want to have all tables designed in a common way. Therefore there is a special environment for our tables.

```
1 \begin{crcTableEnv}{<column-specs>}[<further-specs>]{<caption>}{<label>}
2   .
3   .
4   .
5 \end{crcTableEnv}
```

By default all tables are breakable and the first row is the header which will be repeated after the pagebreak.

- `<column-specs>`: The values for `<column-specs>` are based on column-specs of the  $\text{\LaTeX}$ -package `tabularray`. As a best practice for a three column-table you can use `XXX` then all columns have the same width and span the whole textwidth. You can customize further e.g. `X[2,m]X[3,m]X[1,m]`. Then the first column has twice the width of the third and the second column three times the width of the third column.
- `<further-specs>`: This is an optional argument and gives you the possibility to change certain values (e.g. `rowhead=0`) and overwrite the default.
- `<caption>`: Use for the caption of the table.

- `<label>`: Used for referencing to the table with e.g. `\cref{<label>}`. As a best practice use this schema: `tab:<PROJECT-ID>-table-<number>`, e.g. “`tab:A01-table-01`”, then you can reference the table with `\cref{tab:A01-table-01}`.

## 3.5 Publications

### 3.5.1 Manually adding status for open access

If the automatically detection for the open-access-status is not working (can be due to several reasons), use the possibility explained below.

```
1 options      = {openaccess=auto},
2 doi+an      = {=openaccess},
```

Add the option to the bibtex-entry of the publication and the publication will be shown as open access in the publication list.

### 3.5.2 Equal contribution of authors

In some cases it is very important to state that two or more authors have contributed equally to a publication.

Take the following publication as example:

Schneider, K.M.\*, C. Elfers\*, A. Ghallab, C.V. Schneider, E.J.C. Galvez, A. Mohs, W. Gui, L.S. Candels, T.H. Wirtz, S. Zuehlke, M. Spiteller, M. Myllys, A. Roulet, A. Ouzerdine, B. Lelouvier, K. Kilic, L. Liao, A. Nier, E. Latz, I. Bergheim, C.A. Thaiss, J.G. Hengstler, T. Strowig, and C. Trautwein. 2020. Intestinal Dysbiosis Amplifies Acetaminophen-Induced Acute Liver Injury. *Cell. Mol. Gastroenterol. Hepatol.* 11(4):909-933. \*equal contribution

The first authors have “equal contribution”.

In the bibtex-entry add **two** lines:

```
1 author+an    = {1=equal;2=equal},
2 addendum    = equal,
```

With `author+an` you annotate the authors, the numbers refer to the position of the author in the authors’s list.

The complete entry of the mentioned example looks like:

```
1
2 @article{schneider2020a,
3   author      = {Schneider, Kai Markus and Elfers, Carsten and Ghallab,
4                 Ahmed and Schneider, Carolin Victoria and Galvez, Eric J.C.
5                 and Mohs, Antje and Gui, Wenfang and Candels, Lena Susanna and
6                 Wirtz, Theresa Hildegard and Zuehlke, Sebastian and Spiteller,
7                 Michael and Myllys, Maiju and Roulet, Alain and Ouzerdine,
8                 Amirouche and Lelouvier, Benjamin and Kilic, Konrad and Liao,
9                 Lijun and Nier, Anika and Latz, Eicke and Bergheim, Ina and
10                Thaiss, Christoph A. and Hengstler, Jan G. and Strowig, Till
11                and Trautwein, Christian},
12   author+an   = {1=equal;2=equal},
13   date       = 2020,
14   title      = {Intestinal Dysbiosis Amplifies Acetaminophen-Induced Acute
15                Liver Injury},
16   volume     = 11,
17   pages      = {909--933},
18   language   = {pt},
19   journal    = {Cellular and Molecular Gastroenterology and Hepatology},
20   doi        = {10.1016/j.jcmgh.2020.11.002},
21   number     = 4,
22   source     = {Crossref},
23   url        = {https://doi.org/10.1016/j.jcmgh.2020.11.002},
24   publisher  = {Elsevier BV},
```

```

25 issn          = {2352-345X},
26 year          = 2021,
27 addendum      = equal,
28 }

```

And here is the rendered result:

**K. M. Schneider\***, C. Elfers\*, A. Ghallab, C. V. Schneider, E. J. Galvez, A. Mohs, W. Gui, L. S. Candels, T. H. Wirtz, S. Zuehlke, M. Spiteller, M. Myllys, A. Roulet, A. Ouzerdine, B. Lelouvier, K. Kilic, L. Liao, A. Nier, E. Latz, I. Bergheim, C. A. Thaiss, J. G. Hengstler, T. Strowig, and C. Trautwein. "Intestinal Dysbiosis Amplifies Acetaminophen-Induced Acute Liver Injury". In: *Cellular and Molecular Gastroenterology and Hepatology* 11.4 (2020), pp. 909–933. doi: [10.1016/j.jcmgh.2020.11.002](https://doi.org/10.1016/j.jcmgh.2020.11.002).  
\*equal contribution.

Figure 2: Example entry for authors with equal contribution.

### 3.5.3 Shared last authorship

Very similar to the "equal contribution"-part there is also a way to specify authors who "shared last authorship".

In the bibtex-entry add **two** lines:

```

1 author+an      = {1=sharedLast;2=sharedLast},
2 addendum       = sharedLast,

```

Here is a complete example.

```

1 @Article{roessner2021a,
2   Author       = {Roessner, P.M. and Cid, L.Llao and Lupar, E. and Roider,
3                   T. and Bordas, M. and Schiffllers, C. and Arseni, L. and
4                   Gaupel, A.C. and Kilpert, F. and Krotschel, M. and
5                   Arnold, S.J. and Sellner, L. and Colomer, D. and
6                   Stilgenbauer, S. and Dietrich, S. and Lichter, P. and
7                   Izcue, A. and Seiffert, M.},
8   Date          = {2021},
9   author+an     = {17=sharedLast;18=sharedLast},
10  Addendum      = sharedLast,
11  Keywords      = {Izcue-Selection},
12  Title         = {{EOMES} and {IL}-10 regulate antitumor activity of T
13                  regulatory type 1 {CD4(+)} T cells in chronic lymphocytic
14                  leukemia},
15  Volume        = {35},
16  Pages         = {2311--2324},
17  Language      = {en},
18  JournalTitle  = {Leukemia}
19 }

```

Roessner, P., L. Cid, E. Lupa, T. Roider, M. Bordas, C. Schiffllers, L. Arseni, A. Gaupel, F. Kilpert, M. Krotschel, S. Arnold, L. Sellner, D. Colomer, S. Stilgenbauer, S. Dietrich, P. Lichter, **A. Izcue\***, and M. Seiffert\* (2021). "EOMES and IL-10 regulate antitumor activity of T regulatory type 1 CD4(+) T cells in chronic lymphocytic leukemia". In: *Leukemia* 35, pp. 2311–2324. \*shared last authorship.

Figure 3: Example entry for authors with shared last authorship.

### 3.5.4 Bib strings

The text **shared last authorship** and **equal contribution** are stored in bib strings. By using e.g. addendum=sharedLast (! no {} around sharedLast) we refer to strings stored in the `crc1382-base.bib`-file:

```

1 @String {equal = {\textit{*equal contribution}}}
2 @String {sharedLast = {\textit{*shared last authorship}}}

```

This means whenever there is a need to change to explanation of the star (\*), do it in the `crc1382-base.bib`-file and every instance of that will be replaced and updated.

### 3.6 (Meta)data about PIs and Projects and VIPs and general

All metadata about projects is stored in the database `project`. Since we also need information about the PIs additional metadata comes from the internal database `PI`.

#### 3.6.1 General (metadata/general.tex)

First about common things of the CRC.

```
1 \crcEntry[general]{crc}{
2   ID                = {crc}, % do not change
3   number            = {<string>},
4   name              = {<string>},
5   nameAddon         = {<string>},
6   fundingPeriod     = {<First|Second|Third>},
7   fundingPeriodNumeral = {<1|2|3>},
8   fundingPeriodYear  = {<YYYY>-<YYYY>-<YYYY>-<YYYY>-<YYYY>},
9   fundedSince       = {<YYYY-MM-DD>},
10  universityName     = {<string>},
11  fundingYear1       = {<YYYY>},
12  fundingYear2       = {<YYYY>},
13  fundingYear3       = {<YYYY>},
14  fundingYear4       = {<YYYY>},
15  fundingYear5       = {<YYYY>},
16  fundingYear1previous = {<YYYY>},
17  fundingYear2previous = {<YYYY>},
18  fundingYear3previous = {<YYYY>},
19  fundingYear4previous = {<YYYY>},
20  fundingYear5previous = {<YYYY>},
21  GenderEqualityPIpostDoc = {<integer>},
22  GenderEqualityPIresearchGroupLeader = {<integer>},
23  GenderEqualityPIprof-W2 = {<integer>},
24  GenderEqualityPIprof-W3 = {<integer>}
25 }
```

#### 3.6.2 PI (metadata/pis-projects.tex)

Then we give an overview how an try looks like for a PI:

```
1 \crcEntry[person]{PI}{
2   ID                = {<ID>},
3   name              = {<string>},
4   nameFirst         = {<string>},
5   orcid              = {<0000-0000-0000-0000>},
6   title             = {<string>},
7   institute         = {<string>},
8   university        = {<string>},
9   addressStreet     = {<string>},
10  addressZIP        = {<integer>},
11  addressLocation    = {<string>},
12  phone             = {<string>},
13  email              = {<prefix@domain.suffix>},
14  dateBirth         = {<YYYY-MM-DD>},
15  yearDoctorate     = {<YYYY>},
16  project            = {<projectID>},
17  period            = {<1|2|3>},
18  nationality        = {<string>},
19  children           = {<string>},
20  gender             = {<female|male>},
21  specialRole        = {<spokesperson|steering-committee-member>},
22  position           = {<postDoc|
23                      researchGroupLeader|
```



```

24         juniorResearchGroupLeader
25         juniorProfessor|
26         prof-C3|
27         prof-W2|
28         prof-C4|
29         prof-W3>
30     },
31     positionText = {<string>},
32     % ----- QUESTIONS
33     Q1           = {<yes|no>},
34     Q2           = {<yes|no>},
35     Q3           = {<YYYY-MM-DD>},
36     Q4           = {<YYYY-MM-DD>},
37     Q5           = {<yes|no>}
38 }

```

Data dictionary with further explanations:

- **ID**: This is an internal ID that is used for all kind of references.
- **name**: This is the last name of the PI.
- **nameFirst**: First name of the PI.
- **orcid**: use only the numbers of the ORCID ID.
- **title**: Academic title, e.g. "Prof.\,Dr".
- **institute**: Name of the institute/clinic.
- **university**: Name of the university.
- **addressStreet**: Name of the street of the institute.
- **addressZIP**: digits of the area code.
- **addressLocation**: city of the institute/university.
- **phone**: phone number of the PI incl. area code.
- **email**: email-address of the PI.
- **dateBirth**: birthdate of the PI according to ISO8601.
- **yearDoctorate**: the year when the doctorate has been obtained.
- **project**: list of all the projects the PI participates in as a comma separated list; e.g. A01,B02.
- **period**: list of funding periods the PI has been associated with, 1=first funding period, 2=second funding period etc.
- **nationality**: citizenship the PI has.
- **children**: amount of children with their birthyear, e.g. "2 children (\*2001, \*2004)".
- **gender**: only choose between `male` and `female`.
- **specialRole**: currently two options possible: `spokesperson` and `steering-committee-member`.

With this we can automatically the respective PIs for certain sections.

- **position**: this is a controlled vocabulary list with fixed entries. Entry is counted and used for certain tables.
- **positionText**: a free text which can be used for the curriculum vitae to describe the position of the PI in the institute etc.
- **Q1**: (based on amount of PIs)

- “Is the employment of the
  - \* (one PI:) project leader at the institution
  - \* (more than one PI:) project leaders at the institution(s)
 indicated contractually secured for the duration of the proposed funding period?’
- Valid answer: yes or no.
- **Q2:** (based on amount of PIs)
  - (one PI:) “Does the above mentioned person hold a fixed-term position?”
  - (more than one PI:) “Do any of the above mentioned persons hold fixed-term positions?”
  - Valid answer: yes or no.
- **Q3:** (only if Q2 has been answered with yes)
  - “End date of fixed-term contract:”
  - Valid answer is a date in the format YYYY-MM-DD.
- **Q4:** (only if Q2 has been answered with yes)
  - “Further employment is planned until:”
  - Valid answer is a date in the format YYYY-MM-DD.
- **Q5:**
  - “Funding for the
    - \* (one PI:) position of the project leader at the institution
    - \* (more than one PI:) positions of the project leaders at the institution(s)
 indicated is covered by core support (state funds or similar).”
  - Valid answer: yes or no.

### 3.6.3 Project (metadata/pis-projects.tex)

Now an example entry for a project:

```

1  \crcEntry[project]{project}{
2    ID      = {<ID>},
3    number  = {<ID>},
4    name    = {<string>},
5    status  = {<E|N|C>},
6    type    = {<admin|mgk|research>},
7    pi      = {<ID>},
8    area    = {<NNN-NN>},
9    % ----- QUESTIONS
10   Q1      = {<yes|no>},
11   Q1a     = {<yes|no>},
12   Q2      = {<yes|no>},
13   Q2a     = {<yes|no>},
14   Q3      = {<yes|no>},
15   Q4      = {<yes|no>},
16   Q5      = {<yes|no>},
17   Q5a     = {<yes|no>},
18   Q6      = {<yes|no>},
19   Q7      = {<yes|no>},
20   Q7a     = {<yes|no>}
21 }
```

Data dictionary:

- **ID:** This is the id used for internal referencing. This is usually the number of the project.
- **number:** The real number of the project, e.g. A01.

- **name:** The name of the project as string.
- **status:** only one letter allowed: E for ending project, N for a new project, C for a continued project. This affects internal structure and text of certain tables etc.
- **type:** Defines the type of the current project: currently the template respects `admin` for an administrative project (e.g. Q01), `mgk` for a graduate school, `research` for a “common” research project.
- **pi:** List of PIs associated with the project, use the IDs of the PIs.
- **area:** area-code regarding research field according to the DFG list of 2020.

The following questions are regarding legal aspects concerning the project.

- **Q1:** “This project includes research on human subjects or human material.”; allowed answer `yes` OR `no`.
- **Q1a:** If the previous questions has been answered with `yes`, this question appears: “A copy of the required approval of the responsible ethics committee is included with the proposal.”; allowed answer `yes` or `no`.
- **Q2:** “This project includes clinical trials.”; allowed answer `yes` or `no`.
- **Q2a:** If the previous questions has been answered with `yes`, this question appears: “A copy of the studies’ registration is included with the proposal.”; allowed answer `yes` or `no`.
- **Q3:** “This project includes experiments involving vertebrates.”; allowed answer `yes` OR `no`.
- **Q4:** “This project includes experiments involving recombinant DNA.”; allowed answer `yes` or `no`.
- **Q5:** “This project includes research involving human embryonic stem cells.”; allowed answer `yes` OR `no`.
- **Q5a:** If the previous questions has been answered with `yes`, this question appears: “Legal authorization has been obtained.”; allowed answer `yes` or `no`.
- **Q6:** “This project includes research concerning the Convention on Biological Diversity.”; allowed answer `yes` or `no`.
- **Q7:** “This project includes investigations involving dual use research of concern.”; allowed answer `yes` or `no`.
- **Q7a:** If the previous questions has been answered with `yes`, this question appears: “A copy of the statement by the institution’s research ethics committee is included with the proposal.”; allowed answer `yes` or `no`.

### 3.6.4 VIP (`metadata/general.tex`)

Besides the PIs and their roles as researcher (default), spokesperson or steering-committee-member we need to have another group of people, the VIPs!

Additionally we need four persons, but the spokesperson is partly duplicated. The persons are loaded into the database VIP using the keys provided by `person`, that is why `person` is an optional argument.

**Spokesperson** All other information are gathered from the database PI in combination with the special role `spokesperson`.

```

1 \crcEntry[person]{VIP}{
2   specialRole    = {spokesperson}, % do not change
3   name           = {<string>},
4   nameFirst      = {<string>},
5   title          = {<string>},
6   position       = {Spokesperson of \thisCRC}, % do not change
7 }

```

## Office Management

```
1 \crcEntry[person]{VIP}{
2   specialRole   = {manager}, % do not change
3   period        = {<1|2|3>}, % unfortunately currently necessary
4   name          = {<string>}, % name of the manager
5   nameFirst     = {<string>}, % first name of the manager
6   orcid         = {<0000-0000-0000-0000>}, % ORCID
7   title         = {<string>}, % academic title of the manager
8   institute     = {<string>}, % institute
9   university    = {<string>}, % university
10  addressStreet  = {<string>}, % work address with street
11  addressZIP     = {<integer>}, % ZIP code of the work address
12  addressLocation = {<string>}, % city of the work address
13  phone         = {<string>}, % telephone number
14  email         = {<prefix@domain.suffix>}, % email address
15 }
```

## Rector

```
1 \crcEntry[person]{VIP}{
2   specialRole   = {rector}, %
3   name          = {<string>}, % name of the rector
4   nameFirst     = {<string>}, % first name of the rector
5   title         = {<string>}, % academic title of the rector
6   university    = {<string>}, % university
7   position      = {Rector of <string>}, % adjust <string>
8 }
```

## Dean

```
1 \crcEntry[person]{VIP}{
2   specialRole   = {rector}, %
3   name          = {<string>}, % name of the dean
4   nameFirst     = {<string>}, % first name of the dean
5   title         = {<string>}, % academic title of the dean
6   university    = {<string>}, % university
7   position      = {Dean of <string>}, % adjust <string>
8 }
```

## 4 Title page and introduction

For the titlepage there is no need to adjust. All required information are gathered from the databases.

## 5 “General information” (section 1)

In the proposal there are numerous tables to be filled. For all these tables an internal database will be used for easy filling out and applying the information.

Explanations are structured according to the appearance in the proposal.

### 5.1 “Governing bodies of the CRC” (section 1.1.1)

For this section the entry `specialRole` of the PI-database is used. There are currently two roles defined:

- spokesperson
- steering-committee-member

The get the spokesperson only use the command:

```
1 \crcPIsWithRole{spokesperson}
```

And to get all of the members of the steering board committee:

```
1 \crcPIsWithRole{steering-committee-member}
```

In case you have many members of the steering board committee you can modify the display, e.g.

```
1 \begin{multicols}{3}  
2 \crcPIsWithRole{steering-committee-member}  
3 \end{multicols}
```

## 5.2 “Project leaders” (section 1.1.2)

The table lists all project leaders in alphabetical order. You get this table by calling:

```
1 \crcTable{ProjectLeaders}
```

That’s it.

## 5.3 “Participating institutions” (section 1.1.3)

To get all participating institutions and their departments etc. you can use this one-liner:

```
1 \crcAllParticipatingInstitutions
```

Internally two databases are looped through to get unique lists of universities/institutions and their connected departments/institutes.

Be aware! If you need a different order, you need to the code and adjust it.

## 5.4 “Project groups and projects” (section 1.1.4)

This is an easy part, since there is just one command to call.

```
1 \crcProjectGroupsTable{<A|B|Q>}{Project area <A|B|C> - <Explanation>}
```

Repeat this command for every project area.

## 5.5 “Early career support” (section 1.4.1)

In the section **Early career support** you can add entries using the command `\crcEntry` with the mandatory argument `{EarlyCareerPhD}` and fill it properly. You can have as many entries in any order you like **before** the table printing command `\crcTable{EarlyCareerPhD}`.

Here is a template for an entry:

```
1 \crcEntry{EarlyCareerPhD}{  
2 project = {<Project>},  
3 name = {<Lastname>},  
4 nameFirst = {<First name>},  
5 fundingSource = {<Grant ID etc.>},  
6 topic = {<Title of thesis>},  
7 periodStart = {<YYYY-MM>},  
8 periodEnd = {<YYYY-MM>}  
9 }
```

For the gender equality part of this section you need to use the mandatory argument `EarlyCareerGenderEquality` for `\crcEntry`. Please note, that this is limited to **four** entries for the time periods of 12, 24, 36 and 48 months of contracts. Therefore you should not change the value for the key **duration**.

The horizontal sum of each time period is calculated automatically.

Here is the template:

```

1 \crcEntry{EarlyCareerGenderEquality}{
2   duration      = {<12|24|36|48>}, % do not change
3   PhD-female    = {<integer>},
4   PhD-male      = {<integer>},
5   PostDoc-female = {<integer>},
6   PostDoc-male  = {<integer>},
7 }

```

The table is printed using the command `\crcTable{EarlyCareerGenderEquality}`.

## 5.6 “Gender equality and family-friendly policies” (section 1.4.2)

Please note that this template focuses on the second funding period. There is a difference of the following tables when you apply for a third funding period.

### 5.6.1 “Research staff”

For the subsection **Research Staff** there is the mandatory argument `GenderEqualityStaff` for `\crcEntry`.

There are only **two** categories **PhD** and **PostDoc**, so **do not alter** the content of the key **position**.

The percentage of **Current proportion of women** is calculated automatically.

Here is the template:

```

1 \crcEntry{GenderEqualityStaff}{
2   position      = {<PhD|PostDoc>}, % do not change
3   1st-targeted-female = {<integer>}, % percentage
4   1st-current-female  = {<integer>}, % integer
5   1st-current-male    = {<integer>}, % integer
6   2nd-targeted-female = {<integer>} % percentage
7 }

```

The table is printed using the command `\crcTable{GenderEqualityStaff}`.

### 5.6.2 “Project Leaders”

For this table **nothing** needs to be done, since we can gather all required information from other databases. All you need to do is call the table with: `\crcTable{GenderEqualityPI}`

## 5.7 “Other sources of third-party funding for project leaders” (section 1.5)

In this section you can add entries using this snippet for each funding source.

```

1 \crcEntry{OtherFundingSource}{
2   nameID      = {},
3   projectTitle = {},
4   periodStart  = {},
5   periodEnd    = {},
6   fundingAgency = {}
7 }

```

Here is an example:

```

1 \crcEntry{OtherFundingSource}{
2   nameID      = {pabst}, % metadata/people
3   projectTitle = {Reciprocal interactions between the intestinal microbiota and immunoglobulin A},
4   periodStart  = {2013},
5   periodEnd    = {2016},
6   fundingAgency = {DFG SPP-1656}
7 }

```

When you call the table using `\crcTable{OtherFundingSource}` all entries will be sorted alphabetically by the PI's names.

## 6 “Funding” (section 2)

### 6.1 “Overview of existing funds for direct costs” (section 2.1.1)

For this table also the data from the previous funding period is required. For each year (1–5) one entry is needed.

```
1 \crcEntry{OverviewExistingFundsDirectCostsPrevious}{
2   year          = {<1|2|3|4|5>},
3   applicantInstitution = {<integer>},
4   otherInstitution  = {<integer>},
5   otherFunds       = {<integer>}
6 }
```

Same goes for the applying funding period.

```
1 \crcEntry{OverviewExistingFundsDirectCosts}{
2   year          = {<1|2|3|4|5>},
3   applicantInstitution = {<integer>},
4   otherInstitution  = {<integer>},
5   otherFunds       = {<integer>}
6 }
```

You can print the table with `\crcTable{OverviewExistingFundsDirectCosts}`.

### 6.2 “Overview of existing staff” (section 2.1.2)

For the subsectin **Overview of existing staff** there is the mandatory argument `OverviewExistingStaff` to be used with `\crcEntry`.

There are **seven** different categories:

- professors: Professors
- group-leader: Junior research group leaders
- postdoc: Postdoctoral researchers
- doc: Doctoral researchers
- other-research: Other research staff
- non-research: Non-research staff
- student: Student and graduate assistants

There is also the key **ID**, which serves only as an internal order system.

For **applicant** please state the amount of posistions at the applying institution, for **other** the amount at external institutions.

Here is an example:

```
1 \crcEntry{OverviewExistingStaff}{
2   ID          = {<1|2|3|4|5|6|7>}, % internal number for sorting only
3   category    = {<professors|group-leader|postdoc|doc|other-research|non-research|student>}, % keyword
4   applicant   = {<n>}, % integer
5   other       = {<n>} % ingeger
6 }
```

### 6.3 “List of existing instrumentation” (section 2.1.3)

Equipment and instrumentations need to be listed. Create for each instrument one entry as seen here:

```
1 \crcEntry{ListExistingInstrumentation}{
2   project      = {<ID>},
3   amount       = {<integer>},
4   instrument    = {<name>},
5   company      = {<name>},
6   year         = {<YYYY>},
7   cost         = {<float>},
8   source       = {<name>}
9 }
```

Print all instruments in a project-sorted table with `\crcTable{ListExistingInstrumentation}`.

### 6.4 “Overview” (section 2.2.1)

For this table also the data from the previous funding period is required. For each ID (1–5) one entry is needed.

```
1 \crcEntry{OverviewOfAllPrevious}{
2   ID           = {<1|2|3|4|5>},
3   staff        = {<integer>},
4   instrumentation = {<integer>},
5   fellowships  = {<integer>},
6   globalFunds  = {<integer>}
7 }
```

Same goes for the applying funding period.

```
1 \crcEntry{OverviewOfAll}{
2   ID           = {<1|2|3|4|5>},
3   staff        = {<integer>},
4   instrumentation = {<integer>},
5   fellowships  = {<integer>},
6   globalFunds  = {<integer>}
7 }
```

You can print the table with `\crcTable{OverviewOfAll}`.

### 6.5 “Overview of funds requested for staff” (section 2.2.2)

For each project (<ID>) you need one entry. Here is an example:

```
1 \crcEntry{OverviewOfFundsRequestedForStaff}{%
2   project={<ID>},
3   %---year 1-----
4   postdocYear1      = {<integer>},
5   docYear1          = {<integer>},
6   other-researchYear1 = {<integer>},
7   non-researchYear1  = {<integer>},
8   studentYear1      = {<integer>},
9   %---year 2-----
10  postdocYear2       = {<integer>},
11  docYear2           = {<integer>},
12  other-researchYear2 = {<integer>},
13  non-researchYear2  = {<integer>},
14  studentYear2       = {<integer>},
15  %---year 3-----
16  postdocYear3       = {<integer>},
17  docYear3           = {<integer>},
18  other-researchYear3 = {<integer>},
```



```

19 non-researchYear3 = {<integer>},
20 studentYear3      = {<integer>},
21 %---year 4-----
22 postdocYear4       = {<integer>},
23 docYear4           = {<integer>},
24 other-researchYear4 = {<integer>},
25 non-researchYear4  = {<integer>},
26 studentYear4       = {<integer>},
27 %---year 5-----
28 postdocYear5       = {<integer>},
29 docYear5           = {<integer>},
30 other-researchYear5 = {<integer>},
31 non-researchYear5  = {<integer>},
32 studentYear5       = {<integer>}
33 }

```

The very last entry contains the summary. For this use as project ID something that would be the very last entry compared to the projects, e.g. ZZZZ.

You get the table using: `\crcTable{OverviewOfFundsRequestedForStaff}`.

## 6.6 “Upkeep of laboratory animals” (section 2.3)

The overview of lab animals builds also upon other information and data. Behind `species` there is a controlled list defined, currently there are the entries `mouse`, `mouse-gnotobiotic`, and `rat`. For each of these entries there is a cost defined either by the DFG or self defined. Therefor also check the file `preamble/dfg-salaries.tex` and especially the commands `\dfgMouseHousing` and `\dfgRatHousing`.

```

1 \crcEntry{UpkeepLaboratoryAnimals}{%
2   project      = {<ID>},
3   species      = {<controlledListEntry>},
4   quantity     = {<integer>},
5   weeks-kept   = {<integer>},
6   purchasing-costs = {<integer>},
7   requested-funds = {<integer>},
8   existing-funds  = {<integer>}
9 }

```

And again, you get the table by using the command `\crcTable{UpkeepLaboratoryAnimals}`.

## 7 “Project details” (section 3)

### 7.1 “General information about Project <ID>” (section 3.1)

The first line of a project needs to be

```

1 \crcProjectStart{<ID>}{<PI>}[<PI>][<PI>]

```

This is sufficient to cover all sections like 3.1.1, 3.1.2, 3.1.3 and 3.1.4 (if applicable).

The `<ID>` is the ID of the project (e.g. A01), and there can be up to three PIs for one project. The first PI is mandatory and therefor his/her ID written in `{}` more PIs are optional and written in `[]`.

Based on the values of the keys `status` and `type` not applicable sections are omitted.

Since we need to highlight the PI's name in publications, we can specify the names in all kind of variants (if the publication database is not cleaned).

```

1 \addboldnames{
2   {<Firstname Lastname>},
3   {<Firstname Initital. Lastname>}
4 }

```

## 7.2 Other sections (3.1-3.3)

Please see also above for e.g. inserting images, tables or references.

Regarding references please make sure you have `\crcPublicationsGeneral` at the end of the general project description part. This will print all publication mentioned in the whole project section unless they are listed in “Project-related publications by participating researchers” (see below).

## 7.3 “Project-related publications by participating researchers” (section 3.3.2/3.3.1)

In this section all publications from the PIs need to be listed divided by three categories.

### 7.3.1 “Peer-reviewed publications and books”

You list the publications of this section parsing all the bibtex-keys of the publications in question to the command `\crcPublicationsPeer` as an optional argument.

```
1 \crcPublicationsPeer[
2   <bibtex-key>,
3   <bibtex-key>,
4   <bibtex-key>
5 ]
```

### 7.3.2 “Other publications, both peer-reviewed and non-peer-reviewed”

You list the publications of this section parsing all the bibtex-keys of the publications in question to the command `\crcPublicationsOther` as an optional argument.

```
1 \crcPublicationsOther[
2   <bibtex-key>,
3   <bibtex-key>,
4   <bibtex-key>
5 ]
```

### 7.3.3 “Patents”

You list the publications of this section parsing all the bibtex-keys of the publications in question to the command `\crcPublicationsPatent` as an optional argument.

```
1 \crcPublicationsPatent[
2   <bibtex-key>,
3   <bibtex-key>,
4   <bibtex-key>
5 ]
```

## 7.4 “Project Plan” (section 3.4)

### 7.4.1 Aims

The aims are shown in a box and labeled accordingly. You can have as many aims as you wish, as long they have unique IDs (usually a number). The ID is just for internal referencing and is **not** the number shown for the aim.

```
1 \begin{aims}
2   \crcAimItem{<ID>} ....
3   \crcAimItem{<ID>} ....
4   \crcAimItem{<ID>} ....
5 \end{aims}
```

In the text you can refer to an aim using `\crcAim{<ID>}`.

## 7.4.2 Workpackages and Gantt chart

Workpackages are numbered automatically and sequentially. Thereof it is required to have the environment `\begin{workpackages}...\end{workpackages}`. You can nest workpackages **once** by repeating the environment. The second level will be counted by adding a character to the number of the higher level.

For an individual workpackage you need to use `\crcWorkPackage{<ID>}{keyvalues}` within the mentioned environment above.

You need to pass an ID to them, but this is only for referencing (`\crcWP{<ID>}`), which will only be possible if you are in the same project. If you want to reference to a workpackage of another project you need to do it manually and add the project ID: `\cref{<ProjectID>-<WP-ID>}`.

Here is how to set up a workpackage:

```
1 \crcWorkPackage{<ID>}{
2   name      = {<Text>}, %optional (leave empty)
3   nameShort = {<Text>}, % used for Gantt-chart
4   periodStart= <N>,
5   periodEnd  = <N>,
6   color      = {blue|green|crosshatch|checkerboard|greenblue|red|yellow},
7 }
```

You can give an individual name to the workpackage, which is optional (`nameShort`). The fallback is the automatically generated ID of the Workpackage (e.g. WP 1). If you do not want to have a specific name for the workpackage just leave it empty (`nameShort={}`).

For `periodStart` and `periodEnd` an integer is needed (1 ...16). The number stands for the quarter of the second funding period; e.g. 5 -> Q3|2024; 11 -> Q1|2026.

Notice if you have `periodStart = periodEnd` the workpackage will **not** be plotted in the Gantt chart. this can be useful when you want to omit workpackages of the first level and only print the second level workpackages in the Gantt chart.

To print the Gantt-chart you use `\crcGanttPlot{<ID>}`, for the Gantt-chart of project B06 it would be `\crcGanttPlot{B06}`. If you like to add further information to the Gantt-chart, e.g. to explain about the color codes you pass this information to the print-command in square brackets:

```
1 \crcGanttPlot{B06}[Workpackages colored red are of critical importance; Green ones
2 will be conducted by PhD students and the yellow colored workpackage is of
3 high priority.]
```

Here is an example with various color options.

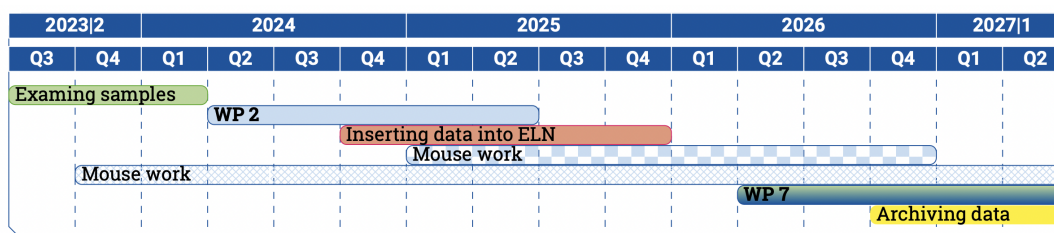


Figure 4: Example Gantt chart for a couple of workpackages.

## 7.5 “Role within the Collaborative Research Centre” (section 3.5)

In this section a network graphic is shown which shows the intended collaborations of the project with other projects. The current project is highlighted.

The network graphic is generated using an R-script. The edges for the network need to be written like this example shows:

```
1 %>>OWN-PROJECT-ID,OTHER-PROJECT-ID
2 %>>B06,A04
3 %>>B06,B08
4 %>>B06,A07
```

```

5 %>>B06,A09
6 %>>B06,B07
7 %>>B06,B01
8 %>>B06,Q02
9 %>>B06,A06
10 %>>B06,A10
11 %>>B06,B02
12 %>>B06,B04
13 %>>B06,Q01

```

An external Bash-script will collect all the edges written in that way and trigger the R-script for producing two figures like these 6

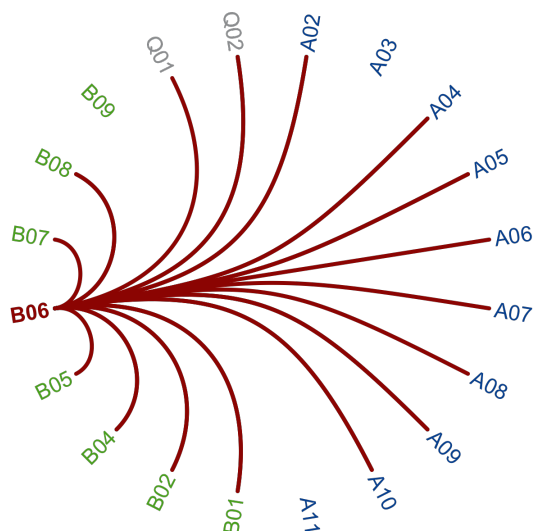


Figure 5: Example collaboration network for the project B06.

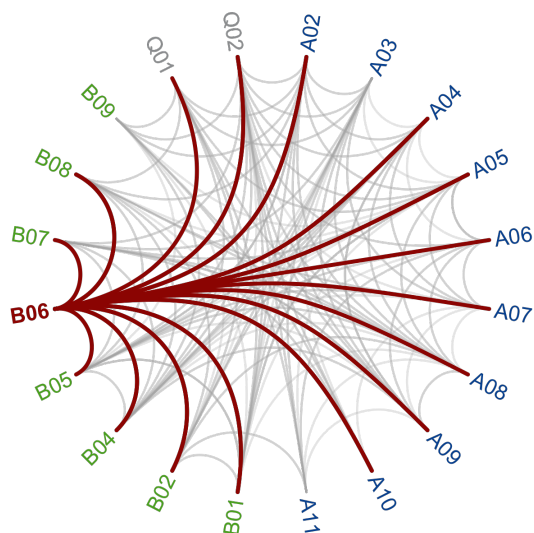


Figure 6: Example collaboration network for the project B06.

You will need to adjust the R-script (`plots/crc-projects-network.r`) accordingly to your CRC specifications (list of projects).

## 7.6 “Project funding” (section 3.8)

### 7.6.1 “Requested funding” (section 3.8.2)

All figures for requested fundings are stored in multiple databases. For each of the sections one database is filled and can contain many entries.

For every staff member fill out one set of the following key-values.

```
1 \crcFunding{<ID>}{staff}{
2   category      = {<string>},
3   percentage    = {<integer>},
4   yearOne-quantity = {<integer>},
5   yearOne-sum    = {<integer>},
6   yearTwo-quantity = {<integer>},
7   yearTwo-sum    = {<integer>},
8   yearThree-quantity = {<integer>},
9   yearThree-sum  = {<integer>},
10  yearFour-quantity = {<integer>},
11  yearFour-sum    = {<integer>},
12  yearFive-quantity = {<integer>},
13  yearFive-sum    = {<integer>}
14 }
```

If you need to purchase instrumentation:

```
1 \crcFunding{<ID>}{instrumentation}{
2   category      = {<string>},
3   yearOne-sum   = {<integer>},
4   yearTwo-sum   = {<integer>},
5   yearThree-sum = {<integer>},
6   yearFour-sum  = {<integer>},
7   yearFive-sum  = {<integer>}
8 }
```

For direct costs:

```
1 \crcFunding{<ID>}{costs}{
2   category      = {<string>},
3   yearOne-sum   = {<integer>},
4   yearTwo-sum   = {<integer>},
5   yearThree-sum = {<integer>},
6   yearFour-sum  = {<integer>},
7   yearFive-sum  = {<integer>}
8 }
```

And as the last category:

```
1 \crcFunding{<ID>}{globalfunds}{
2   category      = {<string>},
3   yearOne-sum   = {<integer>},
4   yearTwo-sum   = {<integer>},
5   yearThree-sum = {<integer>},
6   yearFour-sum  = {<integer>},
7   yearFive-sum  = {<integer>}
8 }
```

Only for projects of the type mgk:

```
1 \crcFunding{Q03}{fellowships}{
2   category      = {<string>},
3   yearOne-sum   = {<integer>},
4   yearTwo-sum   = {<integer>},
5   yearThree-sum = {<integer>},
6   yearFour-sum  = {<integer>},
7   yearFive-sum  = {<integer>}
8 }
```

You can have as many entries as you like as long as you have <ID> as the project ID. Everything will be gathered and printed using the command `\crcTableFunding{<ID>}`

## 7.6.2 “Requested funding for staff of the new funding period”

```

1 \crcFunding{<ID>}{
2   <ExistingResearchStaff|
3   ExistingNonResearchStaff|
4   RequestedResearchStaff|
5   RequestedNonResearchStaff>
6 }{
7   name      = {<string>},
8   nameFirst = {<string>},
9   title     = {<string>},
10  field-of-research = {<string>},
11  position  = {<string>},
12  department = {<string>},
13  commitment = {<integer>},
14  category  = {<PostDoc|Doct. cand.|Technician>},
15  funding-source = {<string>},
16  description = {<string>}
17 }

```

Explanation of the keys used above. If a field/cell is not filled it will be greyed-out automatically.

- **ID**: Project ID; e.g. A01.
- **ExistingResearchStaff|ExistingNonResearchStaff|RequestedResearchStaff|RequestedNonResearchStaff**: This is the status of the staff. Depending on that the person is listed in different spots of the table.
- **name**: Last name of the person. There is a special feature: when using a known ID of a PI, the script will automatically insert `nameFirst`, `title`, `position` from the central PI-database. But you still can overwrite it here.
- **nameFirst**: First name of the person.
- **title**: Academic grade of the person in question.
- **field-of-research**: Area of expertise.
- **position**: Position in the institution etc.
- **department**: name of the department (abbreviation preferred otherwise the table gets easily blown).
- **commitment**: amount of hours the person will spent for the project. Not required for requested staff.
- **category**: Group of status the person belongs to, from the DFG three positions are allowed (PostDoc, Doct. cand., Technician)
- **funding-source**: Abbreviation (preferred) of institution that pays the person's salary. Only applicable for existing staff.
- **description**: Description of the work the person is doing in the project. This will be displayed below the table. Any  $\LaTeX$ -Code can be used for e.g. referencing to workpackages or figures. Start writing in the sense of "... is doing this and that", since the person's name will be put in front of the description.

`\crcTableStaff{<ID>}[<Additional Infos>]`

A best practice is to use the `[]` for putting additional information explaining the table further, e.g. solving the abbreviated departments, since the additional information (if used) are printed right below the table.

### 7.6.3 “Requested funding for direct costs for the new funding period”

```
1 \crcFunding{<ID>}{RequestedDirectCosts}{
2   category      = {<string>},
3   yearOne-sum   = {<integer>},
4   yearTwo-sum   = {<integer>},
5   yearThree-sum = {<integer>},
6   yearFour-sum  = {<integer>},
7   yearFive-sum  = {<integer>}
8 }
```

The direct costs need to be described further which can be done using the created environment `crcFundingTable`:

```
1 \begin{crcFundingTable}[<headline>]
2 <description> & EUR & <float> \\
3 \end{crcFundingTable}
```

In the first column you describe the item in detail. The second column is defined for EUR and you can insert the float in the last column. Do not format the number in the last column. This will be done automatically.

### 7.6.4 “Requested funds for instrumentation”

For this no explicit database needs to be created. You can use the above mentioned environment `crcFundingTable` and add all detailed information in the table cell.

## 8 Proposal appendix: curricula vitae

For the application one also needs to turn in a document with the researchers CVs. For this there is also a structured way to insert data and have it printed in the appendix-document.

### 8.1 Fields and databases

There are different databases to be used:

- career
- activities
- education
- certificates
- training

Each of those databases can be filled with the fields `date` and `content`. I'll give you an example for the database `career`:

```
1
2 \crcCVEntry{<PI-ID>}{career}{
3   date      = {2008--2015},
4   content   = {Medical education at the School of Medicine, RWTH, Germany}
5 }
```

All entries are grouped by the PI and ordered chronologically.

## 8.2 Selected references

The last section is the references section where you can have listed up to ten references which can be chosen freely.

In the bibliography file you need to insert <LASTNAME>-Selection into the field keywords. Then this publication will be printed. Here is an example:

```
1 @article{Roger2022,  
2   author  = {Howard Roger},  
3   title   = {Research is fun},  
4   date    = {2022},  
5   keywords = {Baiwald-Selection},  
6   journaltitle = {Everything about Research}  
7 }
```

In the appendix file all publication references are printed using `\crcCVPublications{<LASTNAME>}`.

## 8.3 Creating the appendix file

If you use the `makefile` of the repository you can get the PDF with the CVs with `make cv`.