ADVANCING
CANCER
TREATMENT

RAYPHYSICS INTRODUCTION

RayStation 11B
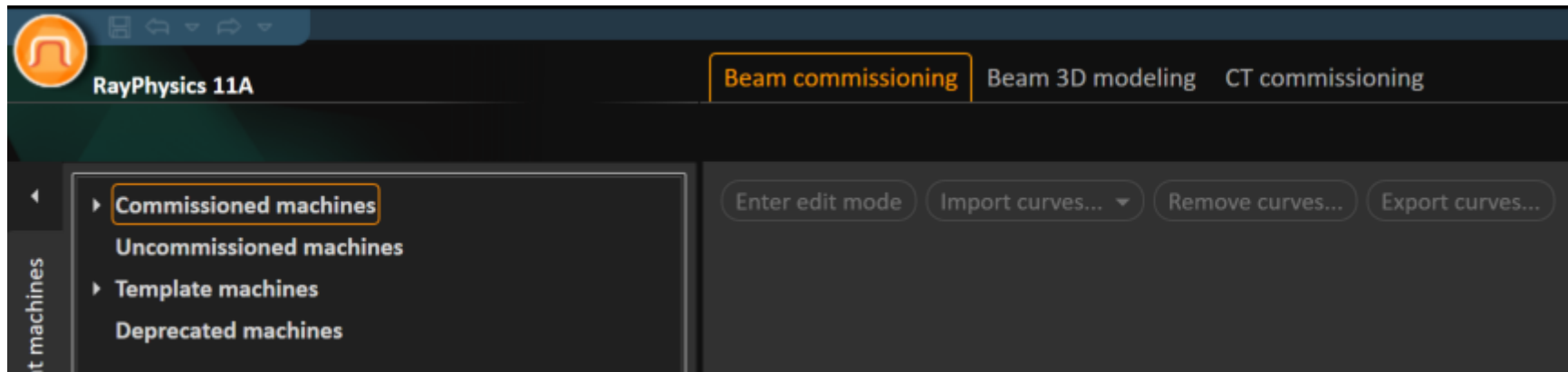
RaySearch
Laboratories

RAYPHYSICS APPLICATION
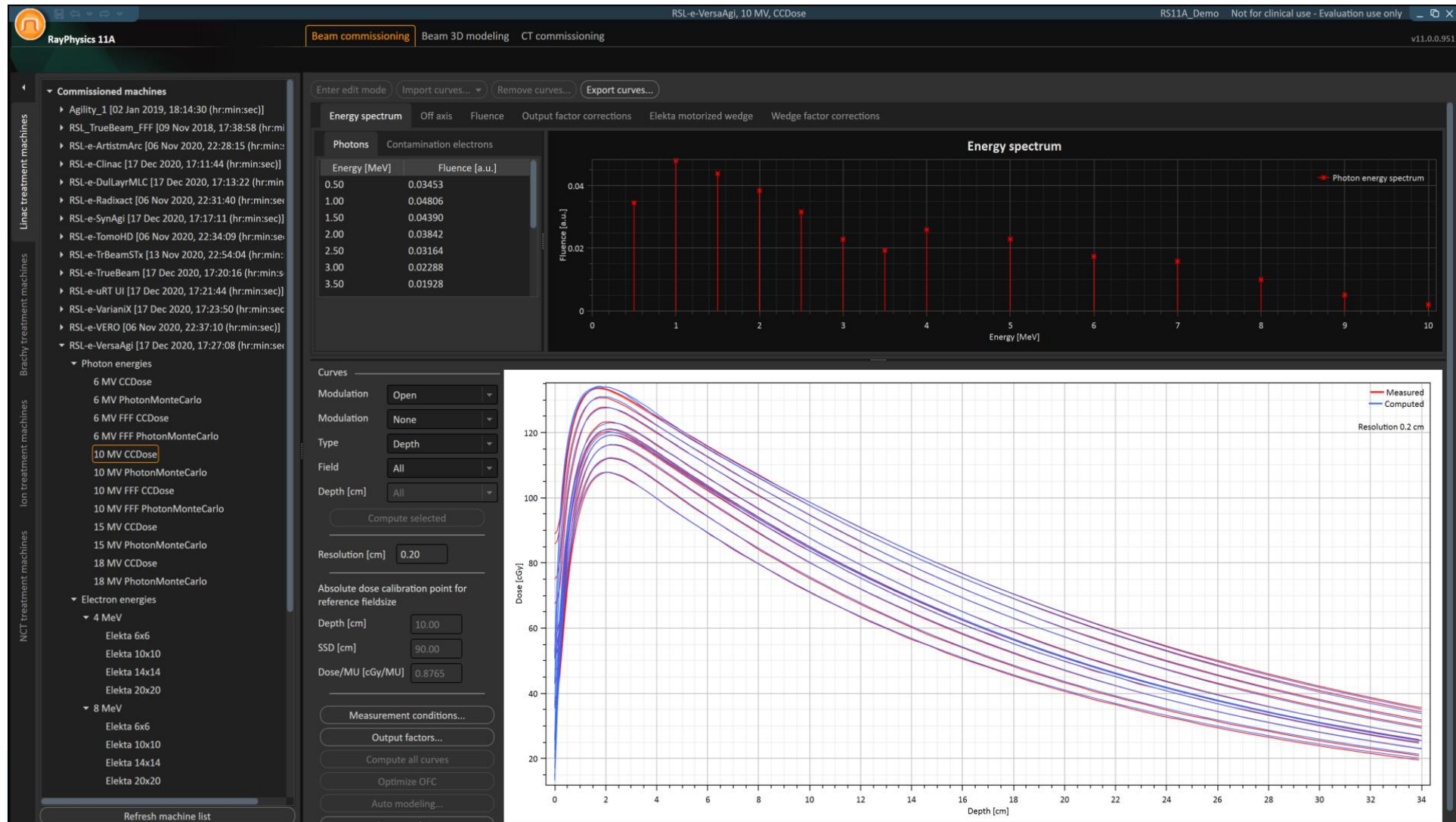
MODULES

3 workspaces:

- Beam Commissioning module
- Beam 3D Modeling module
- CT Commissioning module

MODULES

Beam Commissioning module

- Creating a virtual linac that can be used for treatment planning in RayStation
- Defining general machine constraints used during planning
- Adapt beam model to measured data by adjusting model parameters

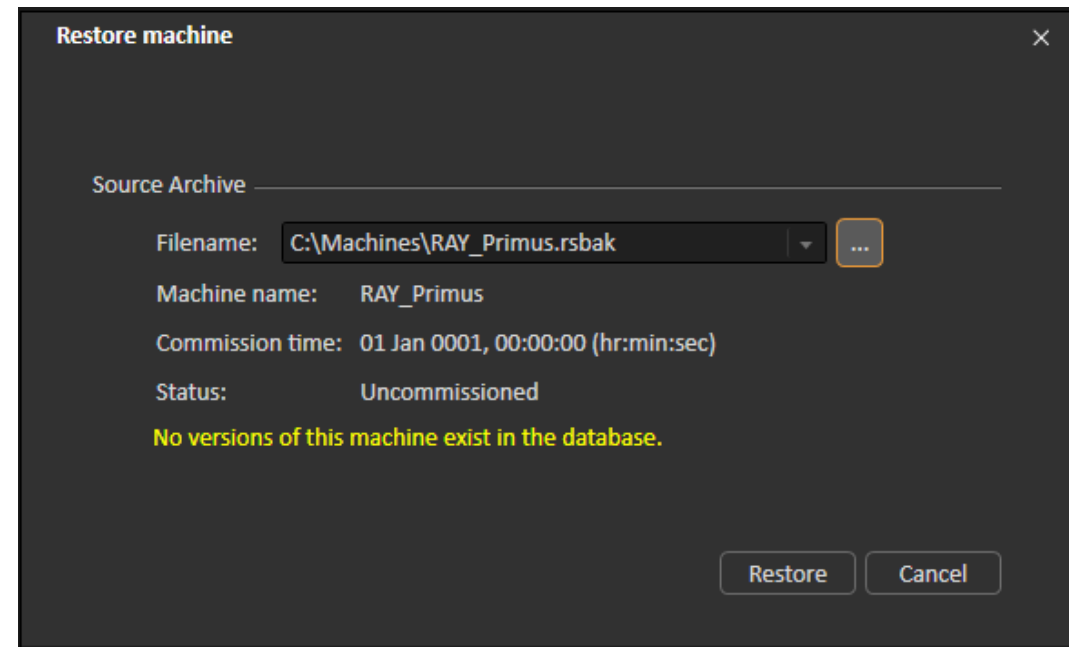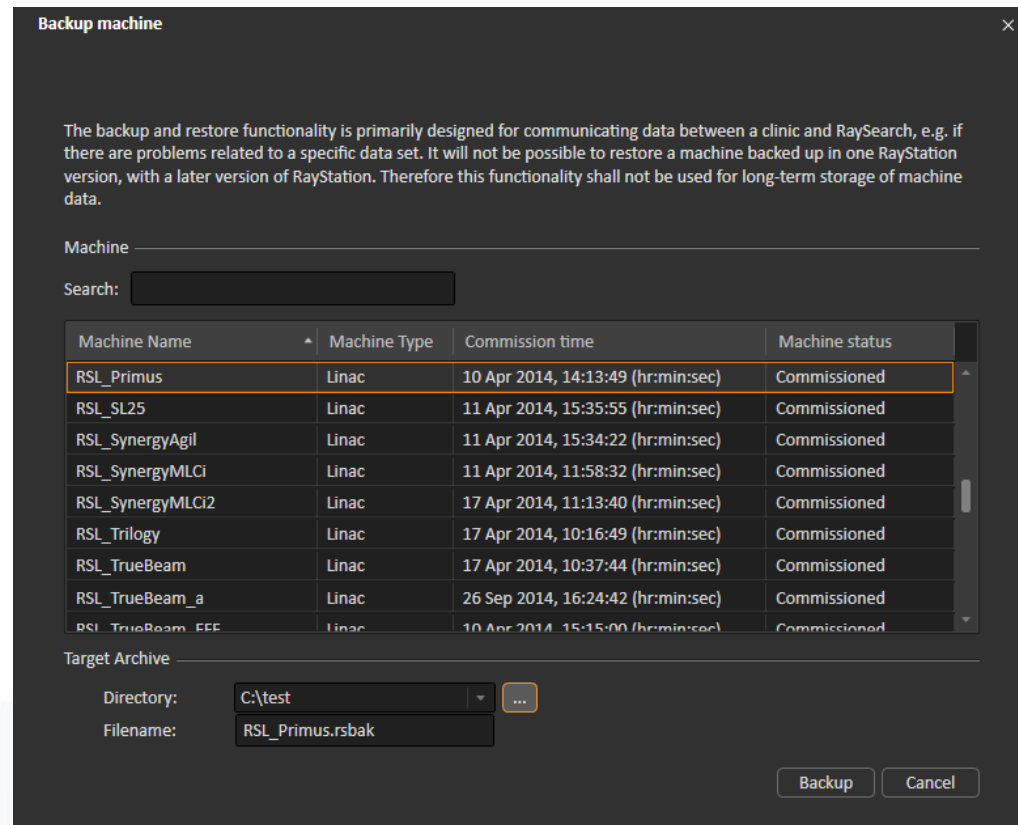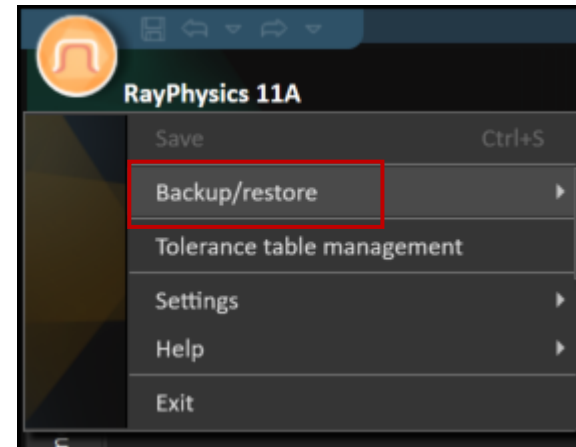Beam 3D Modeling module

- QA phantom handling
- Test fields

CT Commissioning module

- Commission CT and CBCT machines

EDUCATIONAL MATERIAL

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BACKUP AND RESTORE

- Backup and Restore functionality

- Used primarily for communicating data

TOLERANCE TABLE MANAGEMENT

- It is possible to administrate tolerance tables from RayPhysics.

- Tolerance tables are defined separately for Ion and C-arm linacs.

- By selecting on a tolerance table (TT), users will be able to see for which treatment machine that TT is available for as well as the details of the desired tolerance.

    – One TT can be associated to multiple machines

    – One machine can have multiple TTs associated to it

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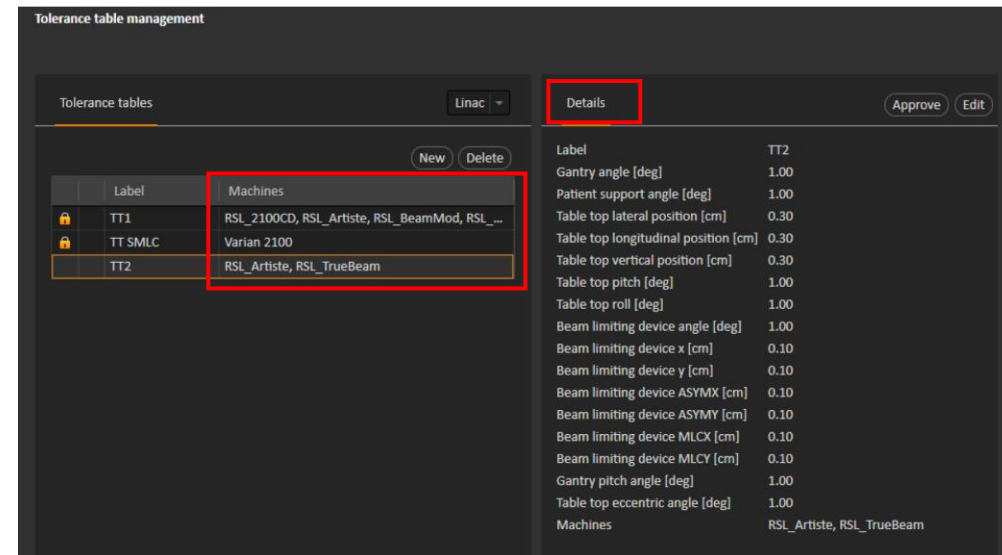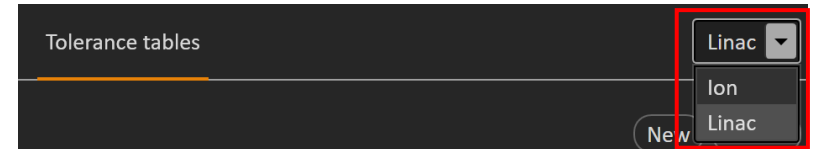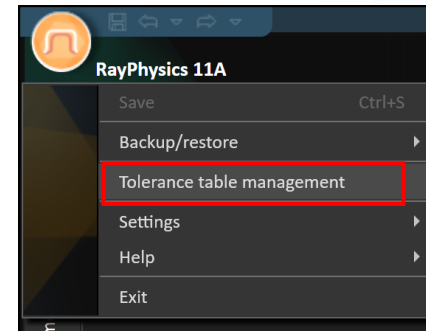
TOLERANCE TABLE MANAGEMENT

Create or Edit a tolerance table:

1. Select the type of machine modality: **Linac** or **Ion**

2. Click the **New** or **Edit** button

3. Edit the desired tolerances. Select which treatment machines the tolerance table should be available for.

4. **Save** or **Cancel** the changes

5. For tolerance table to be available for use in RayStation, click the **Approve** button.

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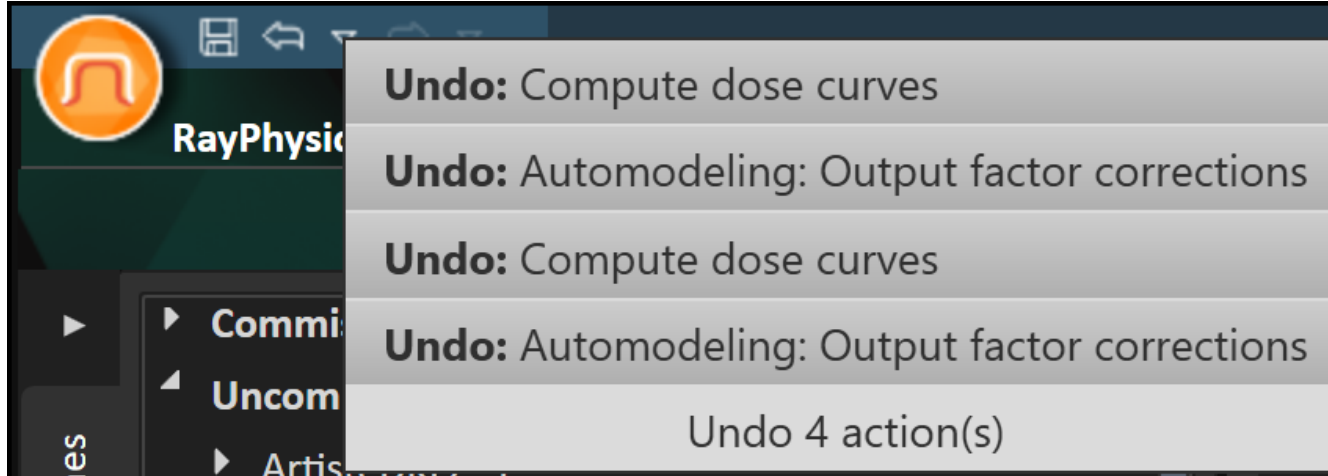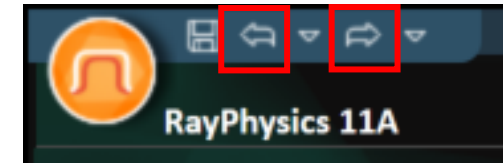
TOLERANCE TABLE MANAGEMENT (FOR RAYTREAT USERS)

- For users of RayTreat 4B onwards, it is possible to administrate tolerance tables from RayPhysics. For further information, refer to the Tolerance table management section in the *RSL-D-RS-XXX-RTIFU, RayStation XXX RayTreat XX Instructions for use manual*.

UNDO/REDO BUTTON

- The Undo button will allow you to always undo actions taken during modelling.

- When you press "save" or leave "Edit mode", the undo/redo stack is emptied.

- The undo button is also available when working in RayStation

- Shortcut:
  - Undo: Ctrl-Z
  - Redo: Ctrl-Y

USEFUL SHORTCUTS

- A – Auto-zoom all curves

- CTRL-C – Copy plot to clipboard

- CTRL+ALT+R – Write plot report to clipboard

- CTRL-V – Paste plot or plot report to external document

- CTRL-D – Compute all curves

- CTRL-W – Optimize OFC

GPU SETTINGS

- Computation of CC, MC photon and proton dose, carbon and helium Ion PB dose and Deformable Registrations are done using GPU

  – Photon contamination part of Electron MC dose calculation also done on GPU

- GPU settings is only available from the RayPhysics and RayStation menu

- Select which GPUs to use for computation if there are more than one GPU installed in the computer

  – Note: Not all GPUs are supported for computations

- It is possible to restrict the number of GPUs that should be used for a single computation

  – Multi-GPU computation is only supported for proton and photon Monte Carlo dose computation