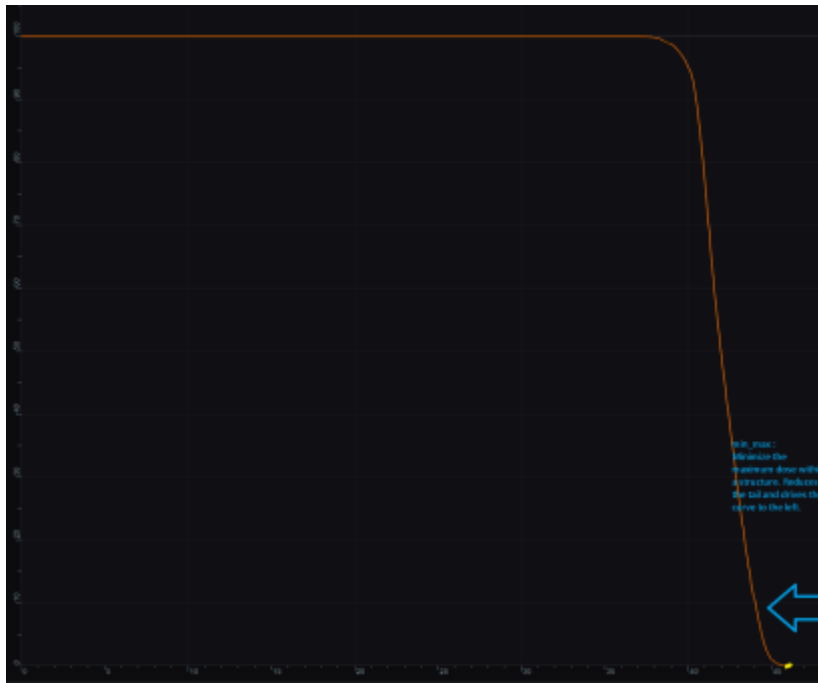


# Optimization Objectives

*Objectives* communicate to the optimizer the goals that are important to strive for in your plan. *Objectives* are set at the *Plan* level under *Plan Constraints/Objectives* and they apply to the total, combined dose from all beams. *Objectives* are not given any relative importance at this point (i.e. their order within the list is not meaningful). The *Objectives* drive the solution of the Multi Criteria Optimization (MCO) and for each *Objective*, a corresponding *Navigation Slider* will be presented to allow for exploration of trade-offs in the case of competing objectives (for more information about the MCO process and how objective importance/weighting is handled in Astroid refer to [this article](#)).

The following objective selections are available in Astroid:

- **min\_max**: Minimize the maximum dose within a structure (drive dose down)
- **max\_min**: Maximize the minimum dose within a structure (drive dose up)

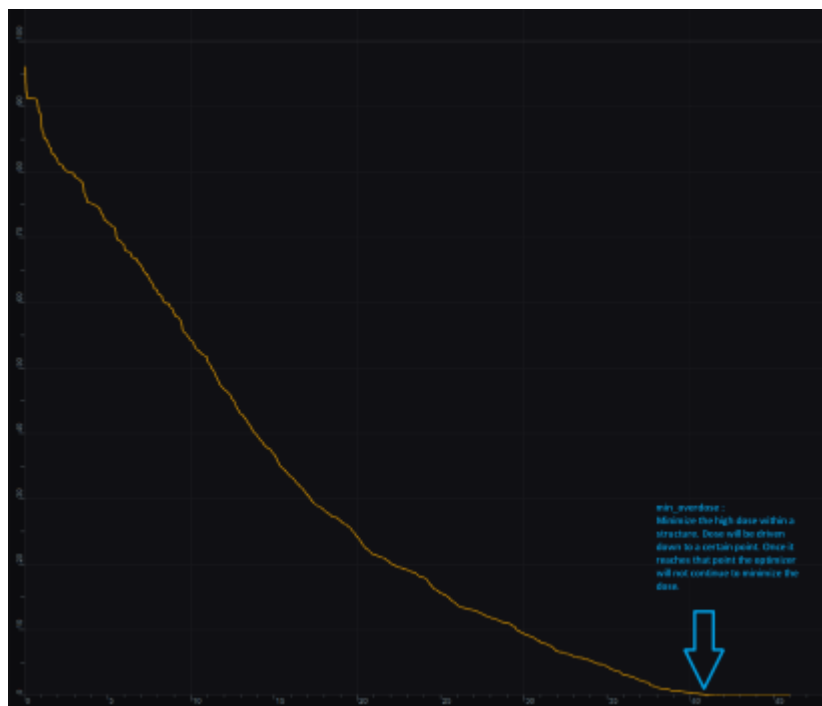


min\_max: Minimize the Max Dose

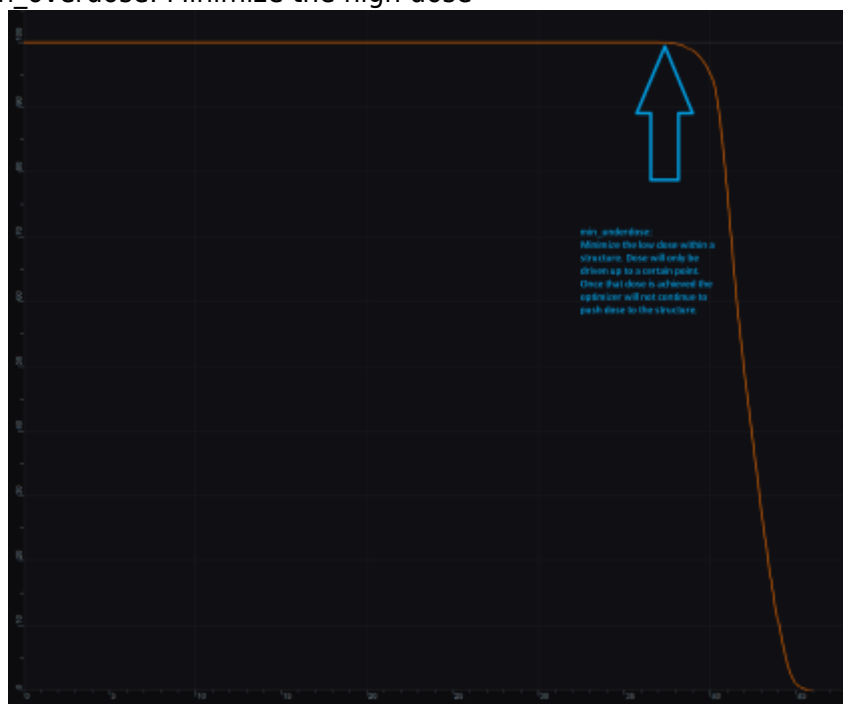


max\_min: Maximize the Min Dose

- **min\_mean:** Minimize the mean dose within a structure (drive dose down)
- **max\_mean:** Maximize the mean dose across the structure (drive dose up)
- **min\_overdose:** Minimize the high dose within a structure
  - Dose will be driven down only until the specified limit is reached (this is often more relevant than min\_max, since it may not be beneficial to continue minimizing beyond a certain dose level)
- **min\_underdose:** Minimize the low dose within a structure
  - Dose will be driven up only until the specified limit is reached (this is often more relevant than max\_min, since it may not be beneficial to continue maximizing beyond a certain dose level)



min\_overdose: Minimize the high dose



min\_underdose: Minimize the low dose

## Working with Objectives

1. Open the *Objectives/Optimizer* sub-block contained in the *Optimization* block
2. Choose a structure to which you wish to apply objectives
3. Check the boxes to activate the desired objectives for the structure and then set the dose level if applicable

Objectives

☒ Rectum ✕

☒ min\_max  
☐ min\_mean  
☒ min\_overdose  
35 Gy(RBE)

☒ PTV ✕

☐ min\_max  
☐ min\_mean  
☒ min\_overdose  
45 Gy(RBE)

☐ max\_min  
☐ max\_mean  
☒ min\_underdose  
☒ Gy(RBE)

Add Structure ▼

OK Cancel

Once all the *Objectives* have been set, the user is ready to run the MCO solver, which is performed in the *Objectives/Optimizer* block.

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Last update: **2021/07/29 18:25**

