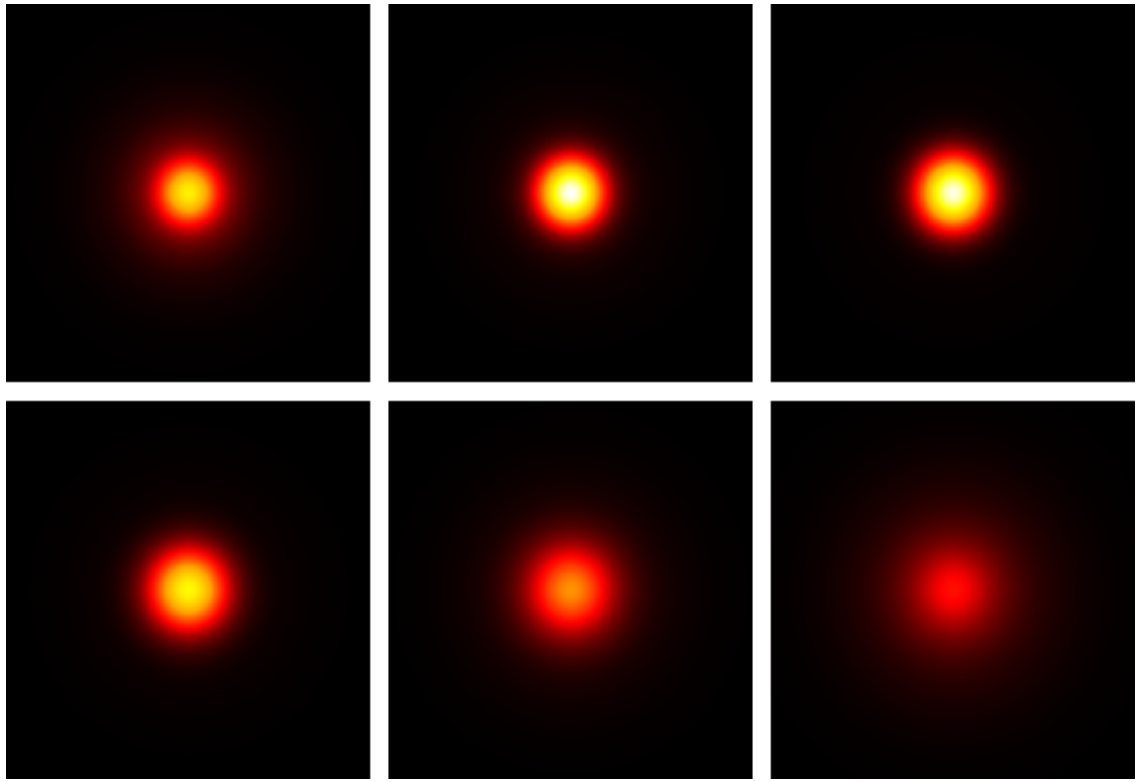
Create Animations and Overview Images from Parameter Sweep

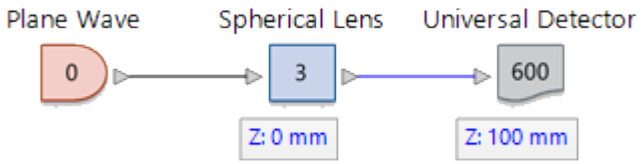
Abstract



Parameter Sweeps are a common tool to calculate the change of the result depending on the variation of a certain physical quantity. With the Animation document, VirtualLab Fusions offers a flexible tool to visualize such kind of sweeps in-software. For applications like papers, reports and documentations however, it is highly practical to depict the animations in a static and/or printable way. For such cases, the user can use the Overview Image feature to easily transform animations to static pictures while still demonstrating the overall variation.

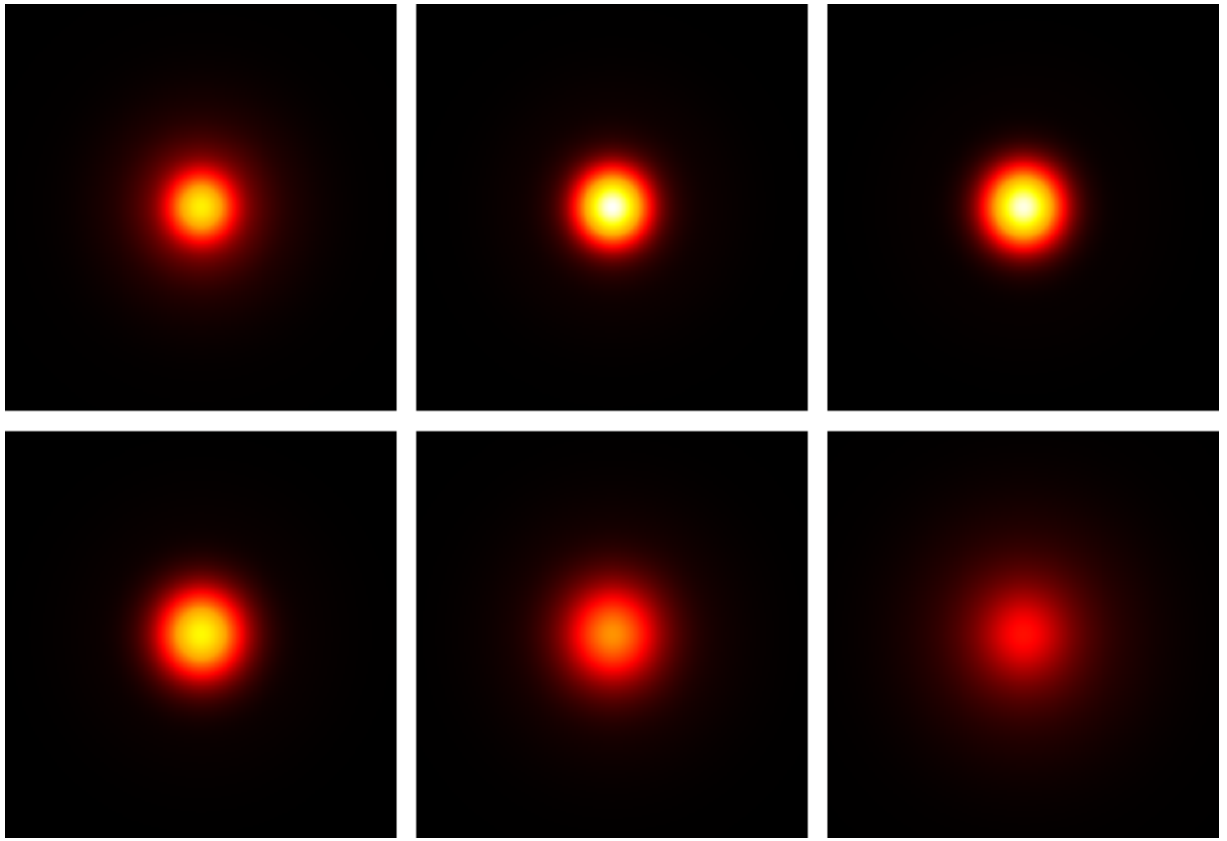
This Use Case Shows …

… how to visualize the effects of a varied parameter in a single picture with the help of the *Overview Image* and *Animations*.



spherical lens

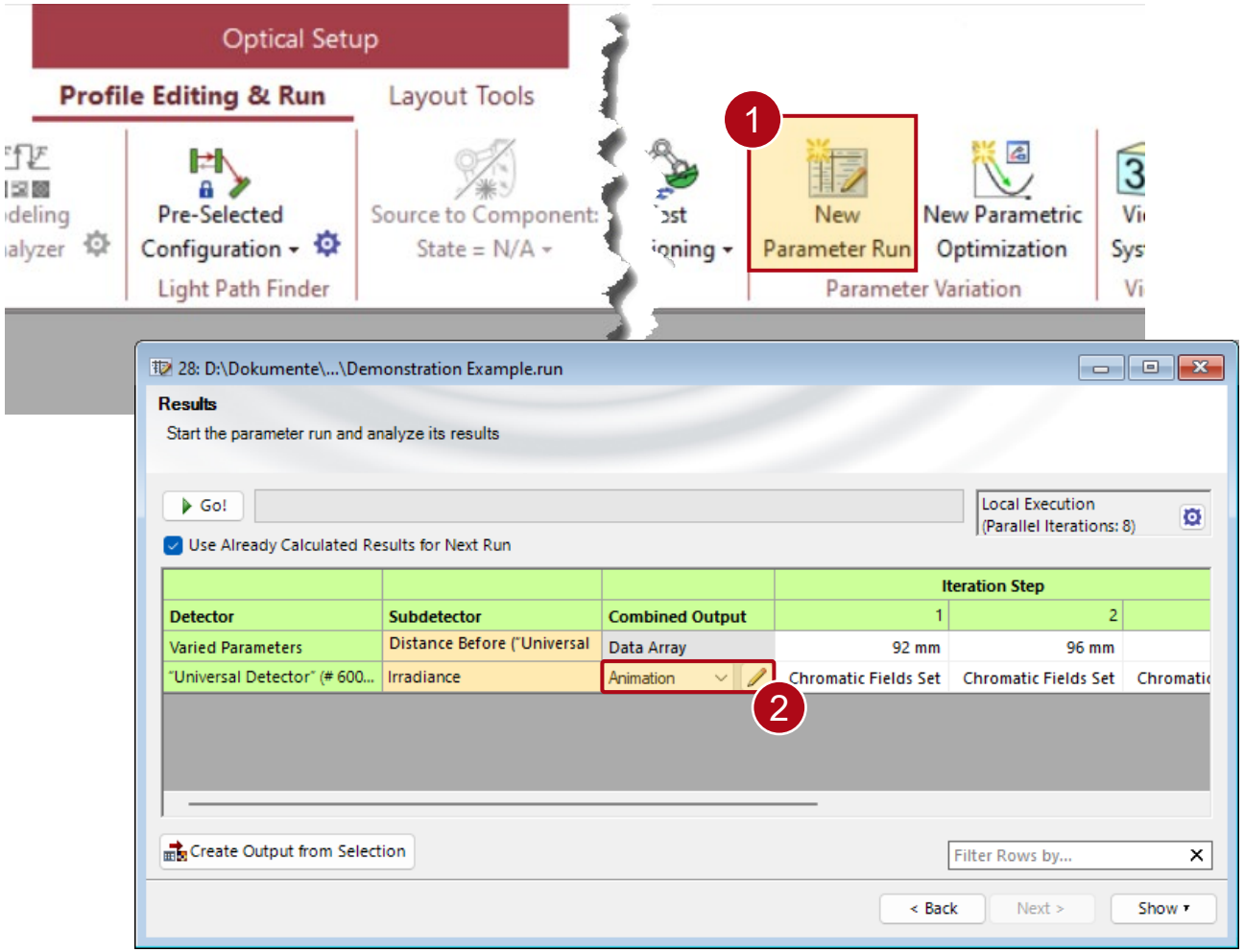
- focal length
  100 mm

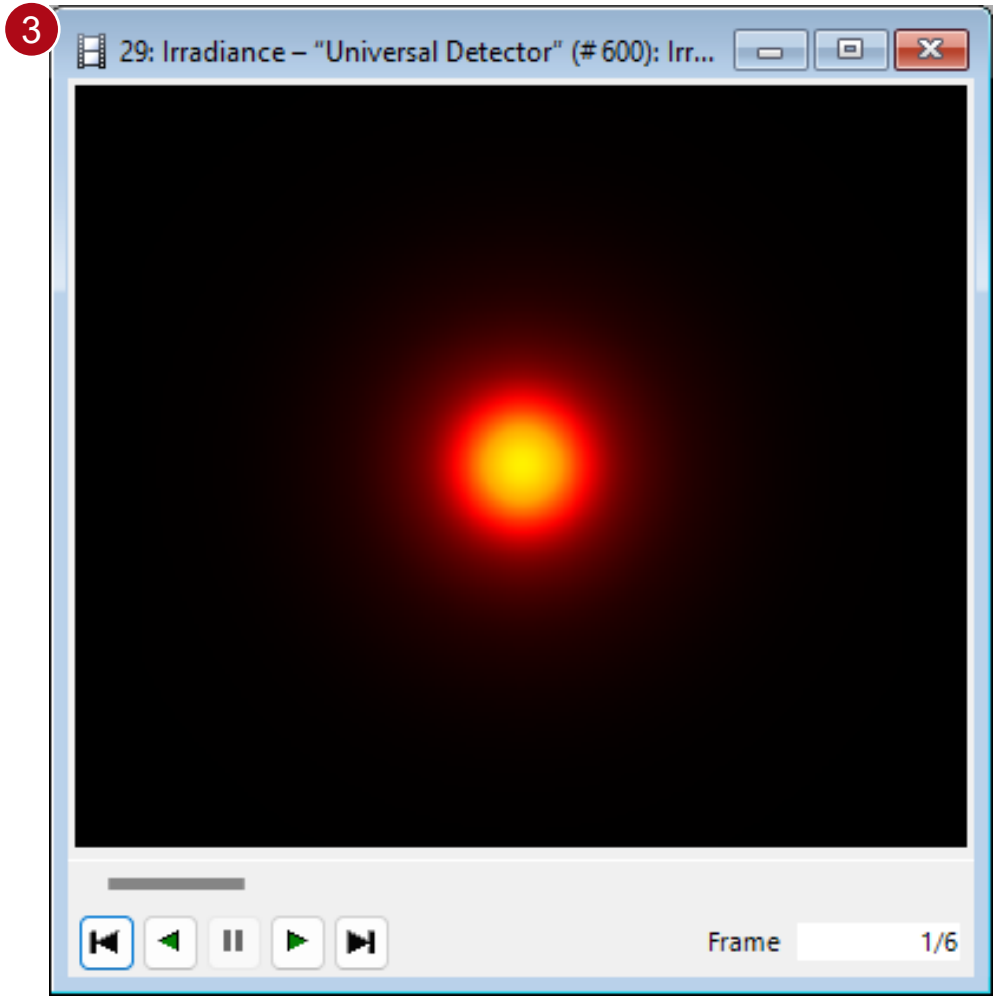


varying parameter:

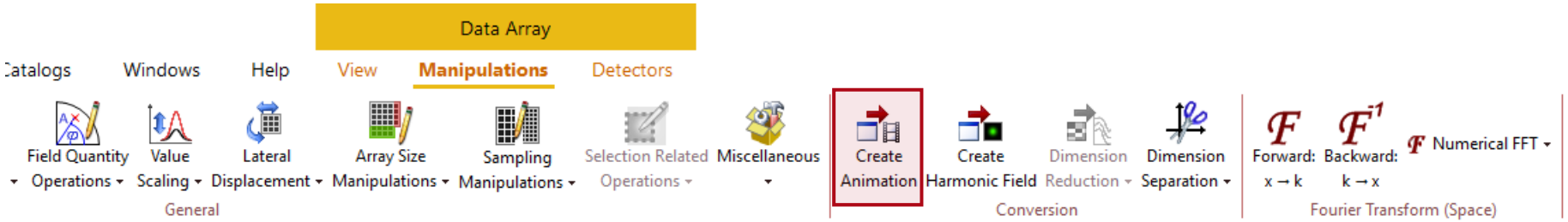
position of the detector along the optical axis
(from 92 mm – 112 mm in 6 steps)

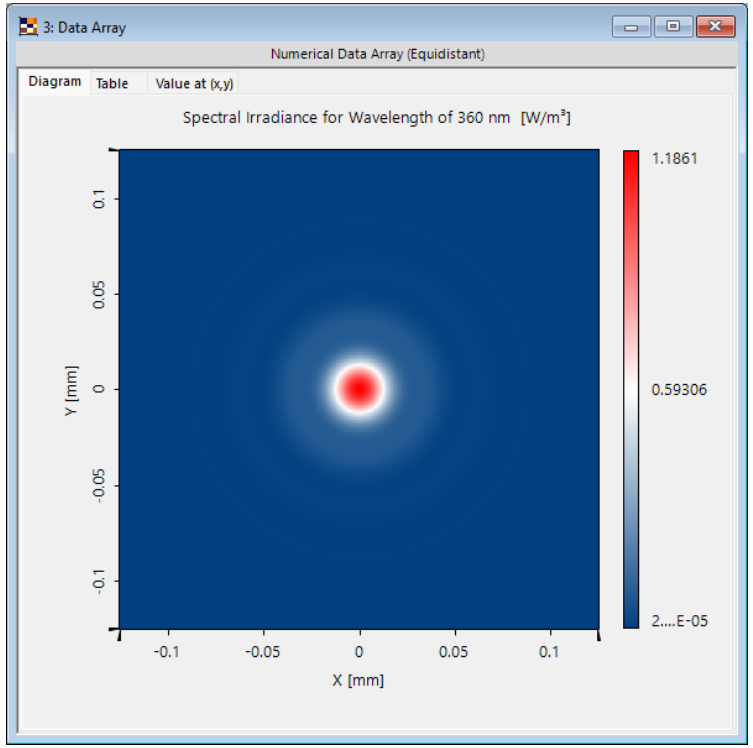
Generate an Animation with a Parameter Run





Create Animation from a Set of Data Arrays



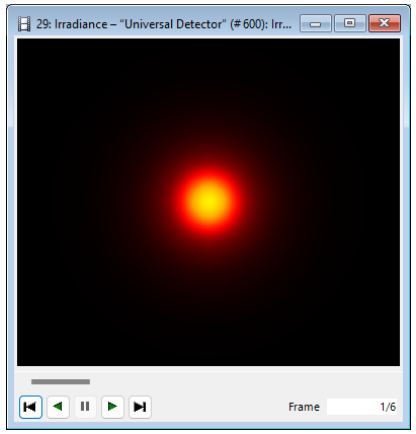


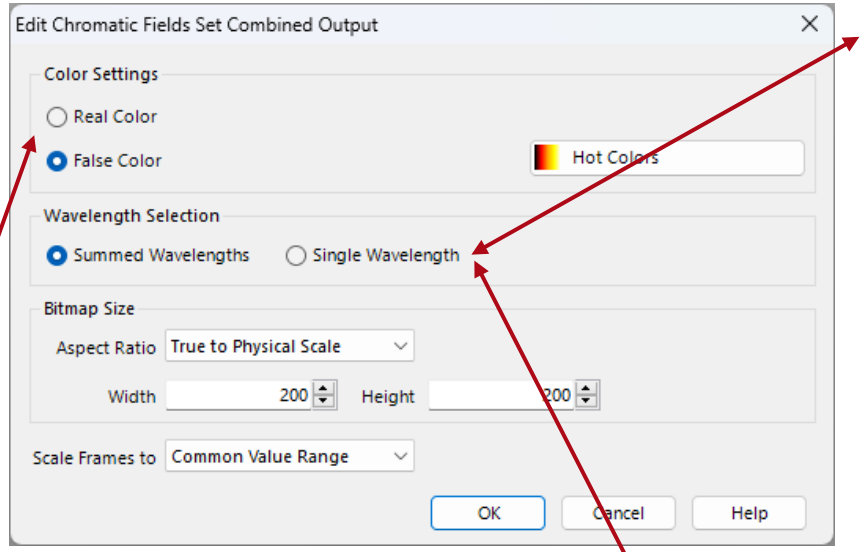
If the parameter sweep exists as data arrays or chromatic field sets, click *Create Animation* in the *Manipulations* tab to generate the animation.

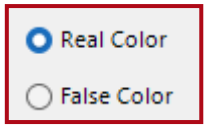
The information on the following pages apply equally, regardless of how the animation was created.

Animation Output: Color and Wavelength

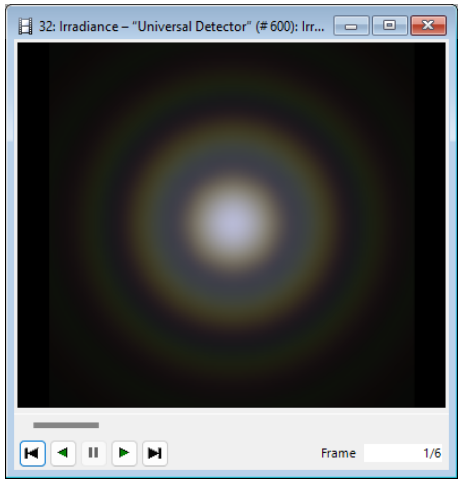
reference



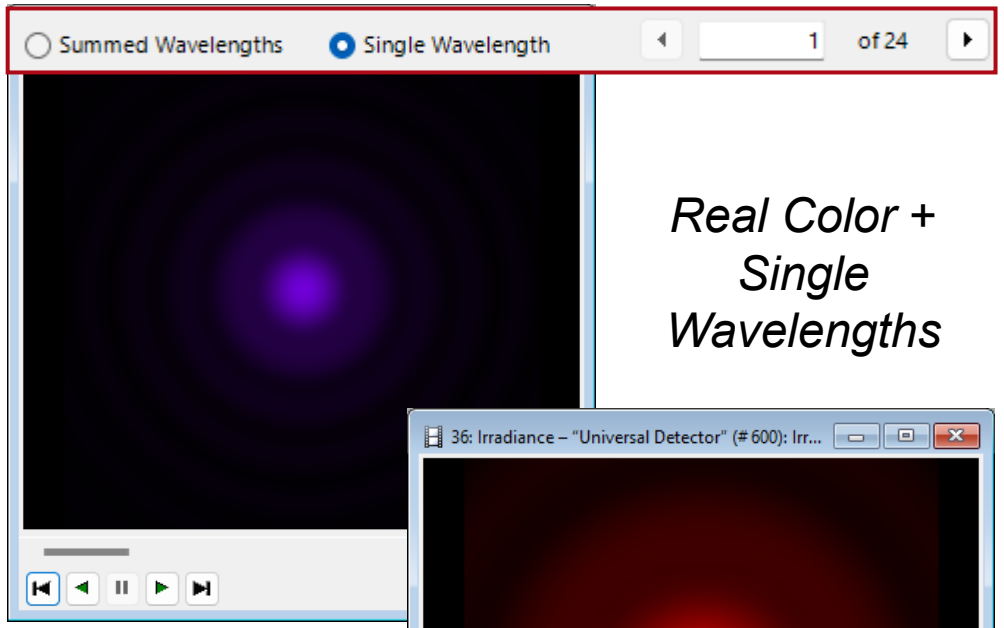




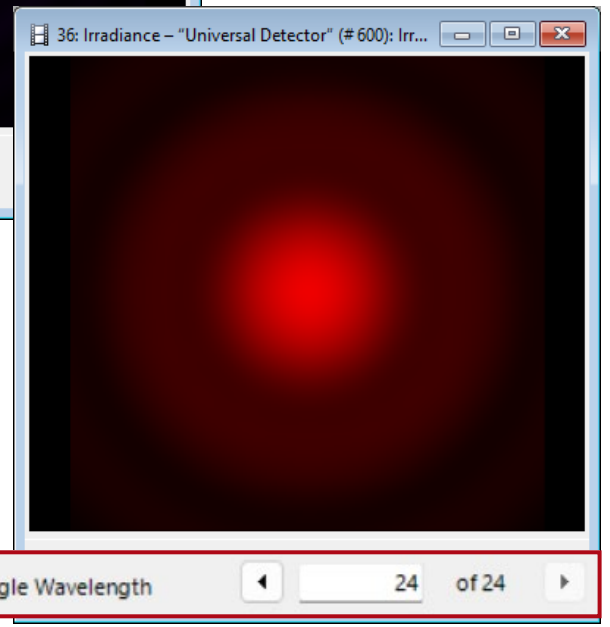
Real Color + Summed Wavelengths

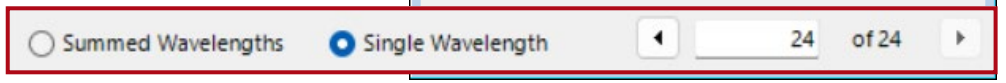


Note: The Color Settings and Wavelength Selection part will only appear in case a Chromatic Field Set is used. For Data Arrays only the lower part is available.



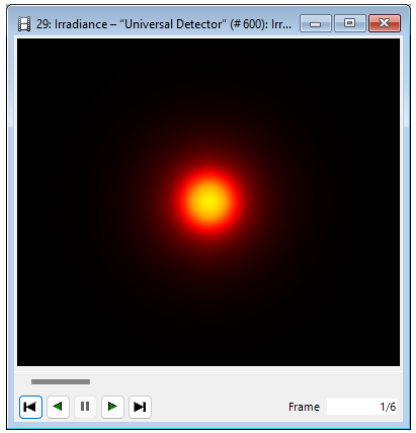
Real Color + Single Wavelengths

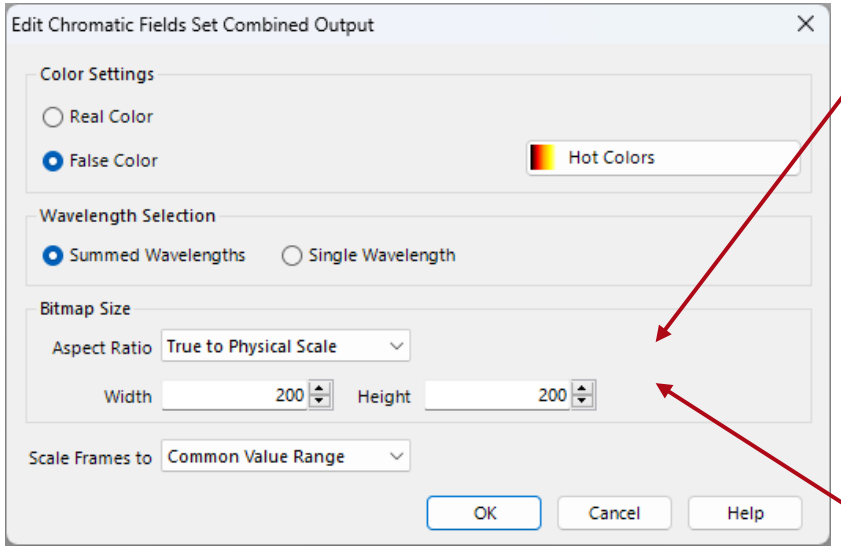


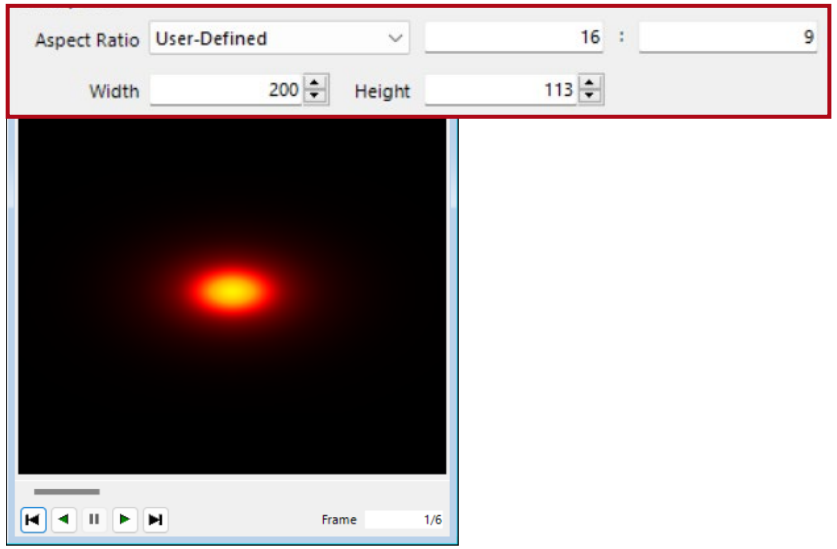


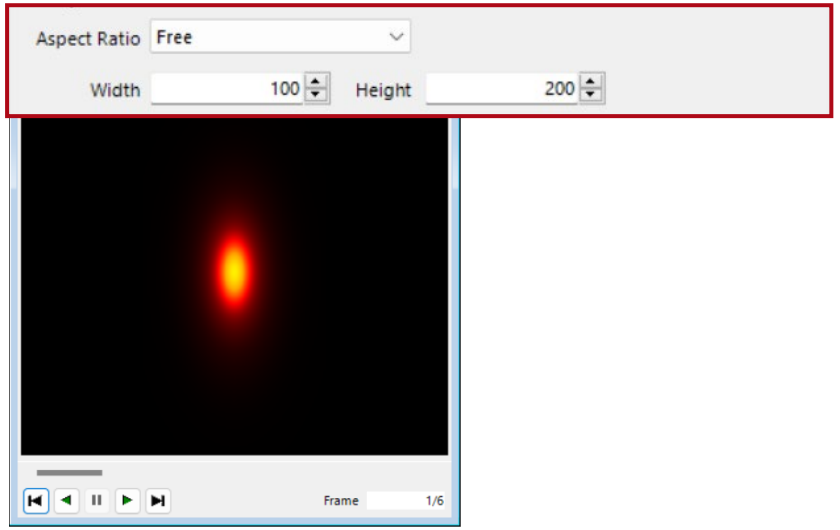
Animation Output : Bitmap Size

reference





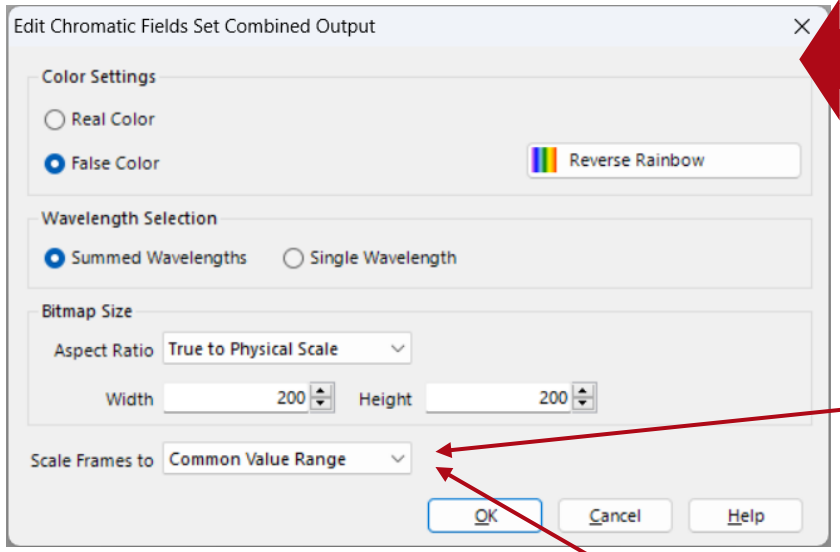


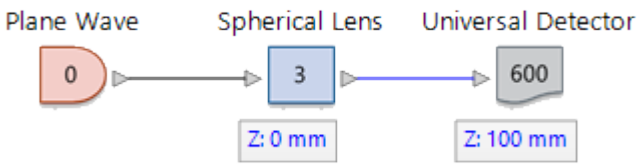


When you set the *Aspect Ratio* to *User-Defined*, you gain the flexibility to choose the most suitable ratio, ensuring the animation looks good on various devices, such as when it is displayed on projectors.

When the *Aspect Ratio* is set to *Free*, you can adjust the *Width* and *Height* of the individual bitmaps as desired.

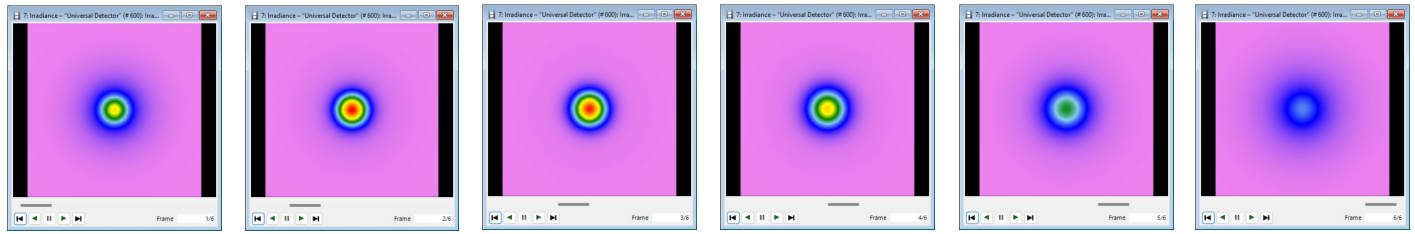
Animation Output: Data Scaling



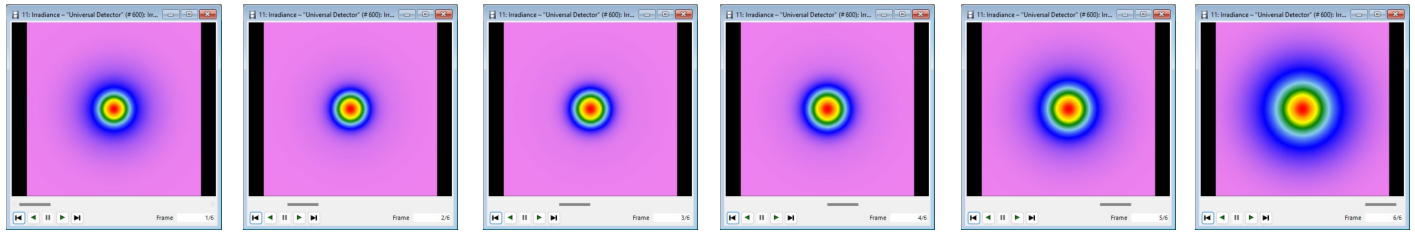


varying parameter:
position of the detector along the optical axis
(from 92 mm – 112 mm in 6 steps)

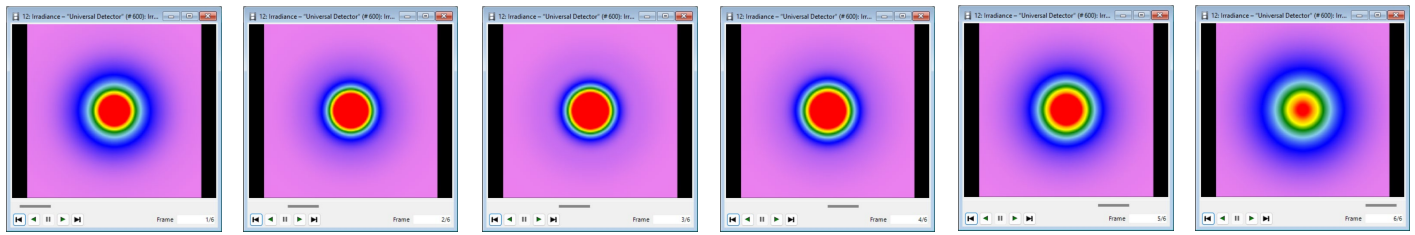
reference



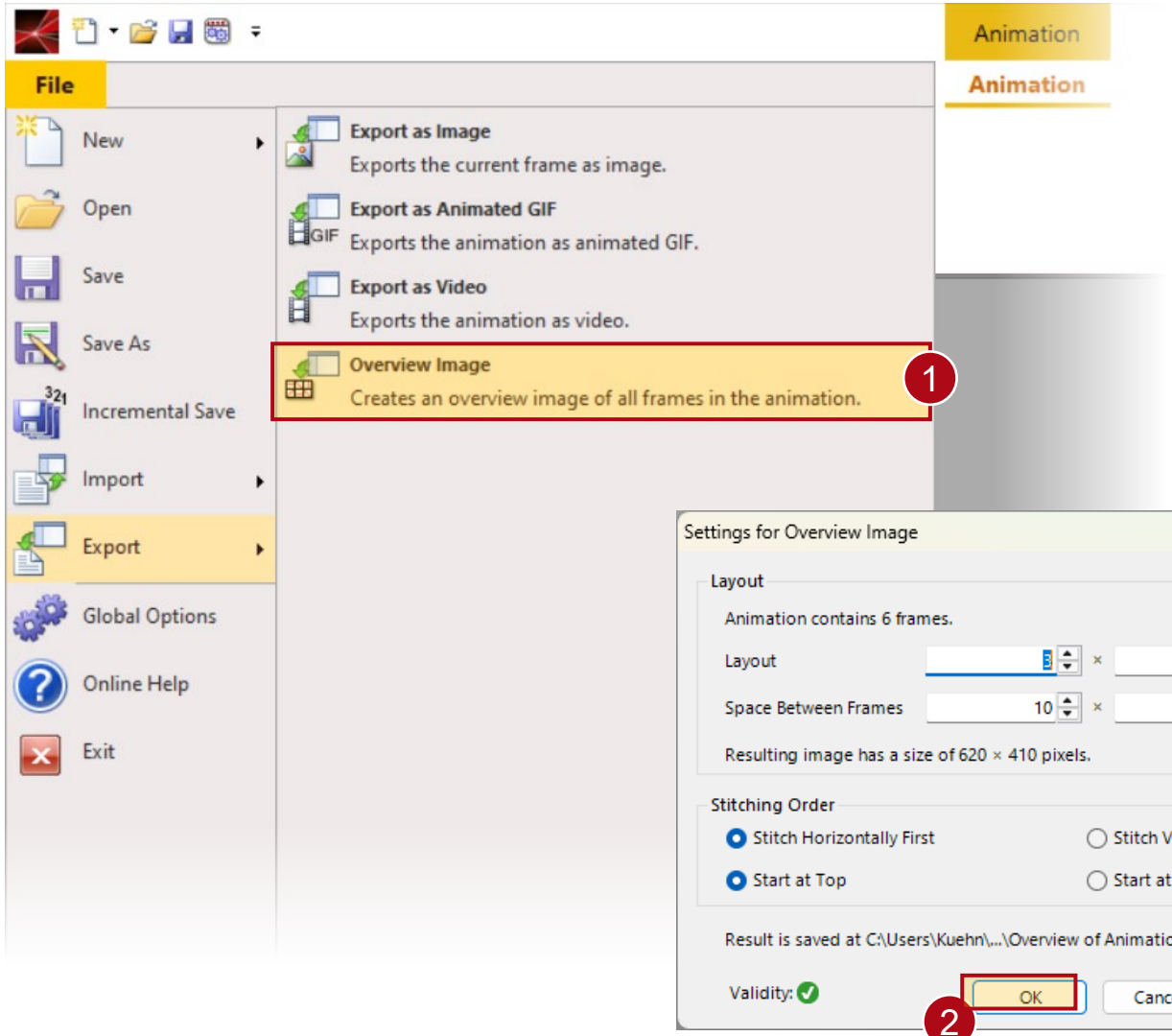
Scale Frames to Individual Value Range

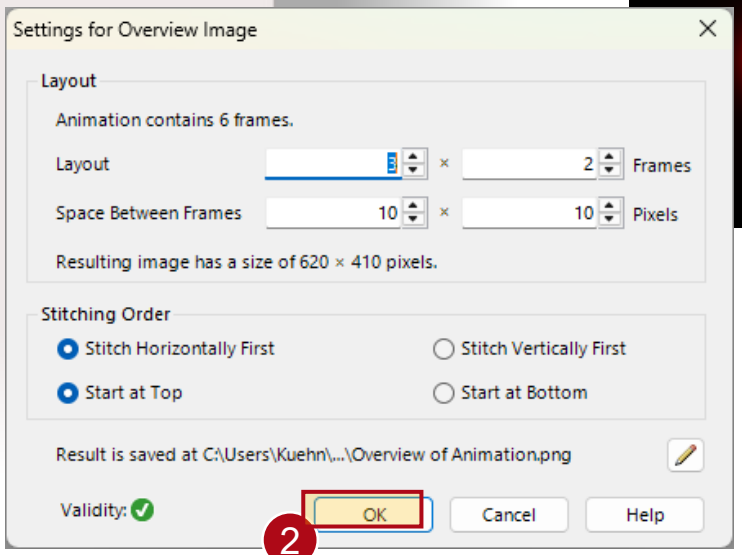


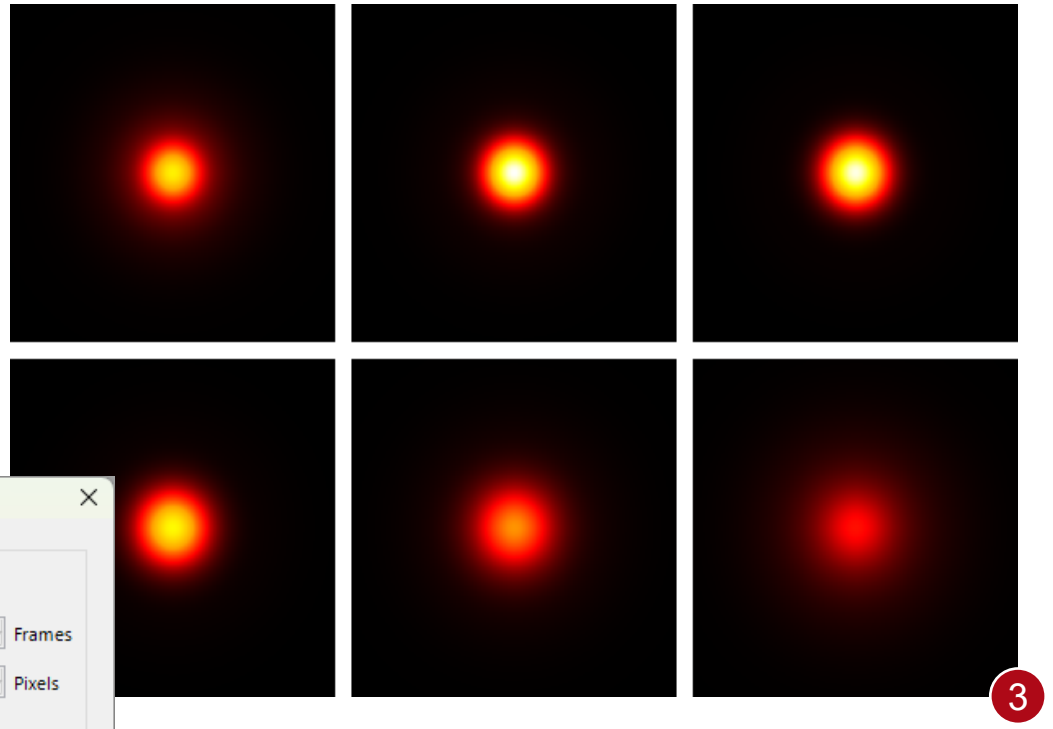
Scale Frames to User-Defined Value Range 0 W/m³ ... 5 W/m³



Export a Overview Image from the Animation

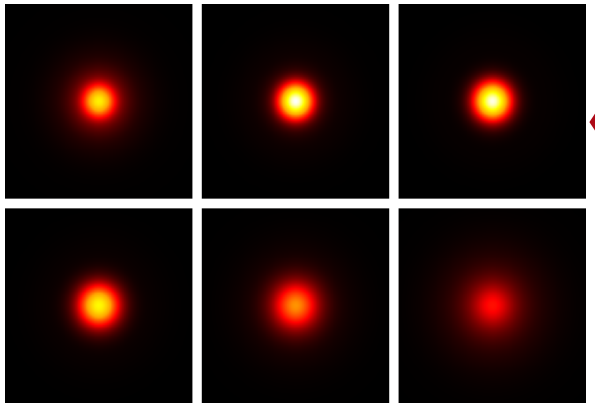


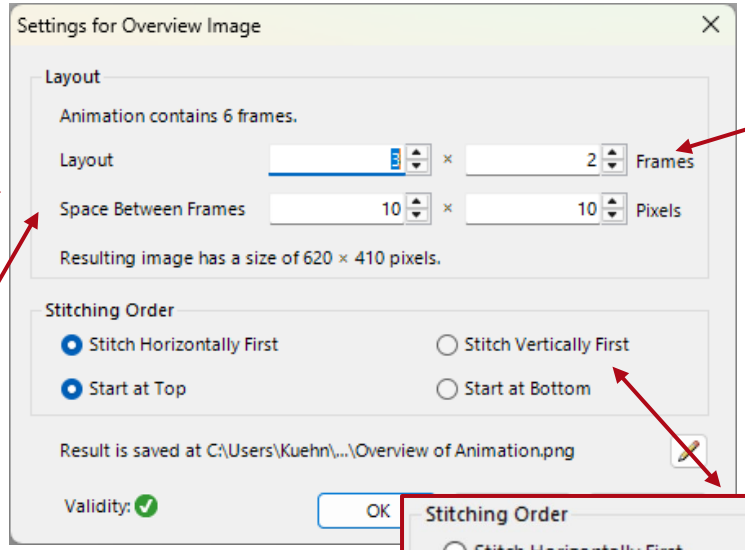




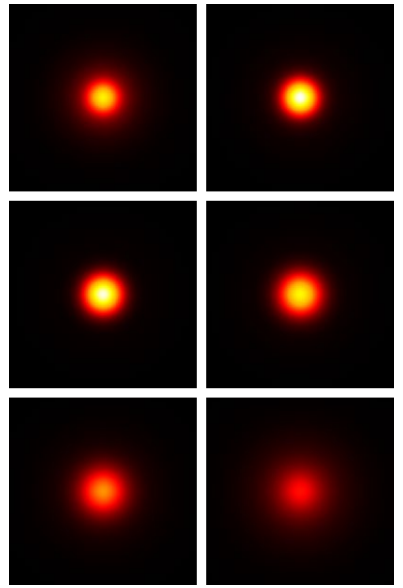
Export Options of the Overview Image

reference

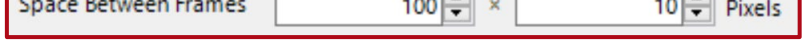


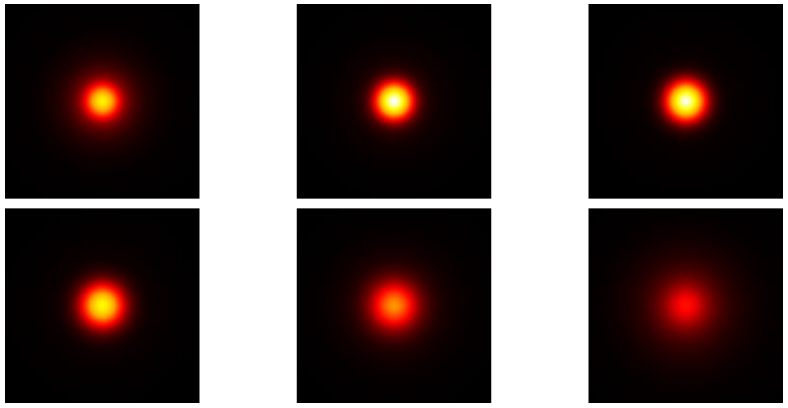


adjusted layout

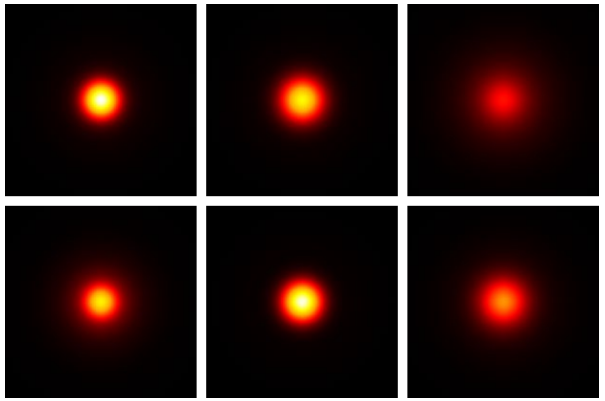


adjusted spacing

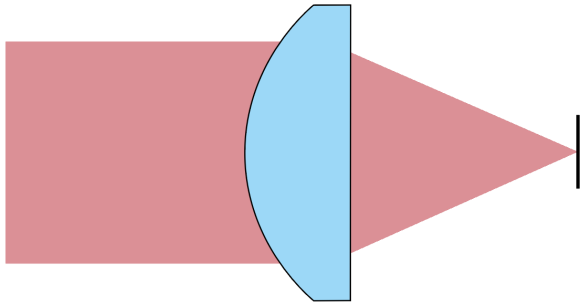




adjusted order



Application Example 1: Detector Position Variation

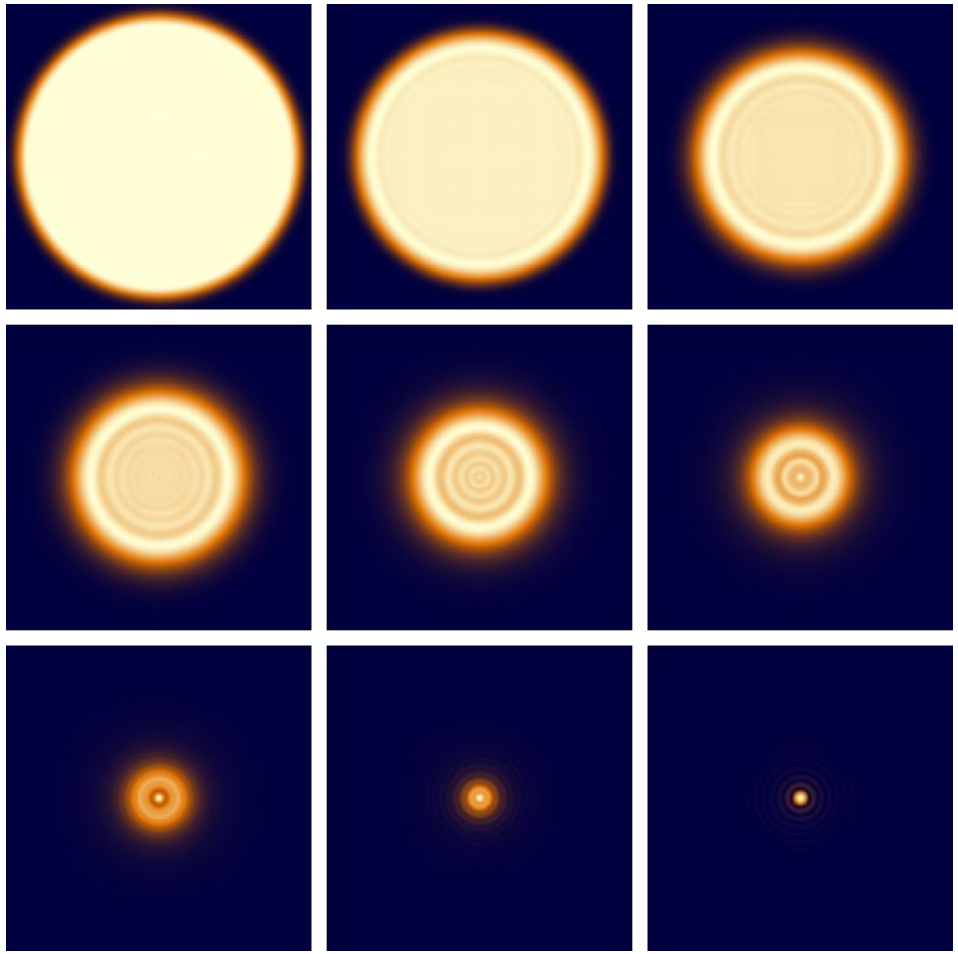


fixed parameter

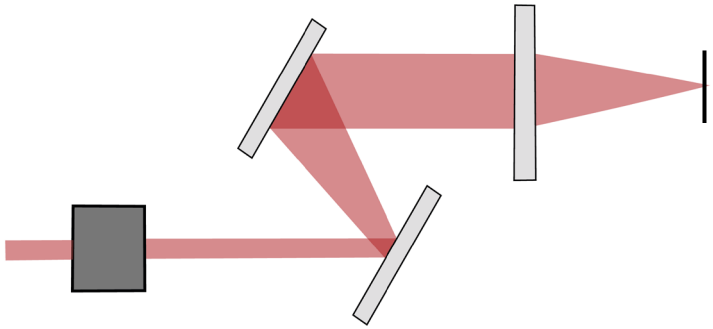
- source: Plane Wave, 532 nm
- idealized lens: 100 mm focal length

varying parameter

- distance between detector and ideal lens
- from 0 nm – 100 nm in 9 steps



Application Example 2: Pulse-Front Tilt



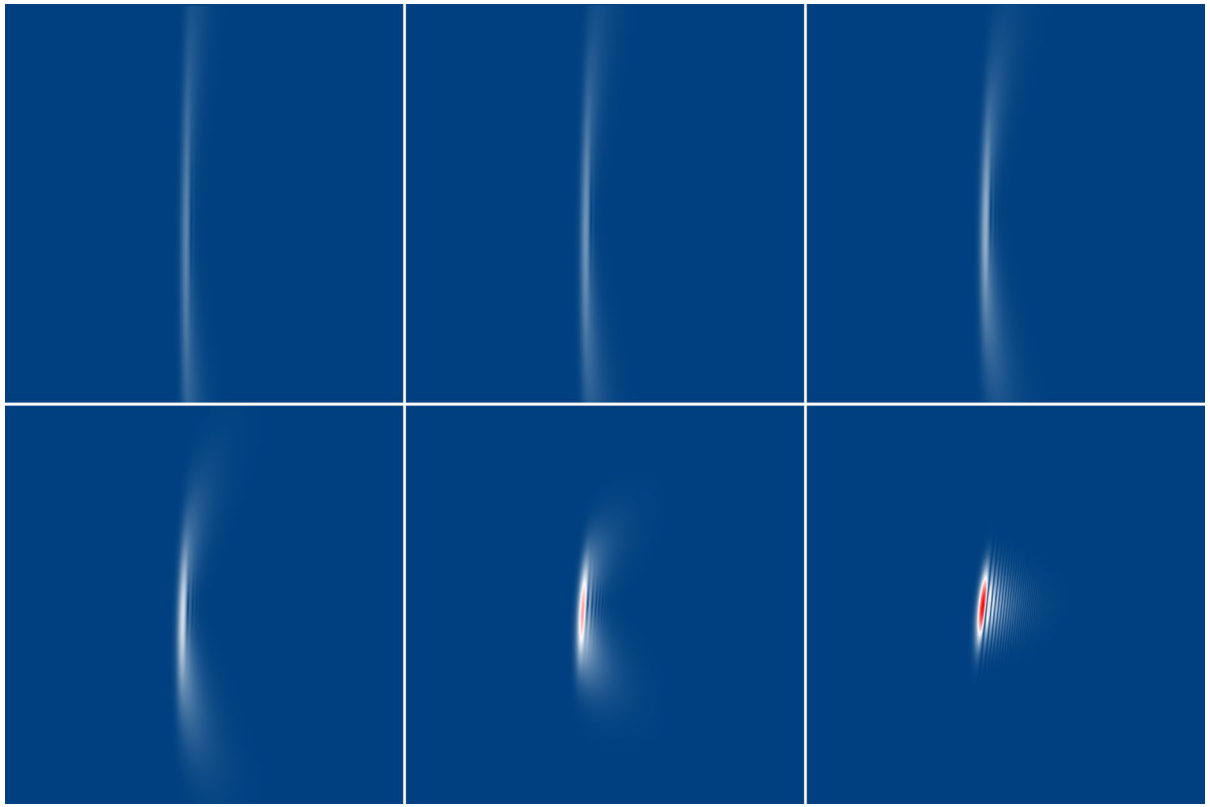
fixed parameter

- source: 25 fs Gaussian pulse
- idealized lens: 75 mm focal length

For a full list of the parameters, see:
Pulse Front Tilt in SSTF-Setups

varying parameter

- distance between detector and ideal lens
- from 70 mm – 75 mm in 6 steps



Document Information

title	Export Overview Images from Animations
document code	SWF.0020
document version	1.0
software edition	VirtualLab Fusion Basic
software version	2023.1 (Build 1.556)
category	Feature Use Case
further reading	• Usage of the Parameter Run Document • Animation Generation from Chromatic Fields Sets in Parameter Run • Export of Results of a Parameter Run

Presearch

SWF.0020,Overview Image, overview, image, animation, animations, parameter run, export, result, visualization, save, saving, figure, figures, customization, report, report customization, video

Short Abstract

In this use case we demonstrate how to create a picture that incorporates the course of an animation.

Marketing Picture