

UseCase.0061 (1.0)

## Combine Chromatic Fields Sets

**Keywords:** merge, combine, together, detector result, CFS

# Description

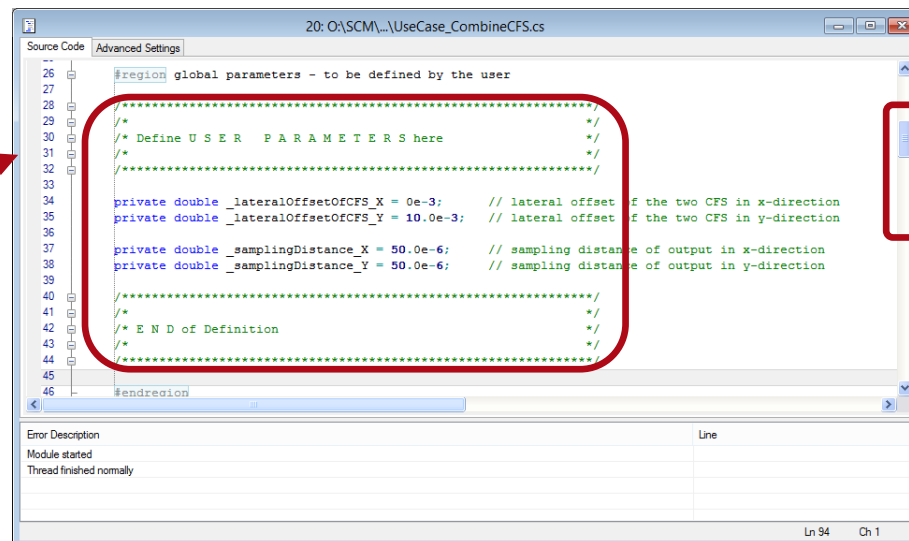
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- This use case illustrates the usage of a module for the combination of two chromatic fields sets (CFSs). The user can define a lateral offset which is applied before the combination. Further a common sampling has to be specified. It is required that both sets have the same wavelength.
- The user can define the following parameters:
  - lateral offset between the two CFS
  - sampling distance of the combined CFS
- Modules cannot be used with the Trial version.

# The Module

- Open the module UseCase\_CombineCFS.cs from the Samples directory.
- The sampling parameters of resulting CFS are to be defined directly in the source code.

it is clearly indicated where the user-defined parameters are to be set



```
26  --
27  #region global parameters - to be defined by the user
28  .....
29  /*
30  /* Define USER PARAMETERS here
31  /*
32  .....
33  .....
34  private double _lateralOffsetOfCFS_X = 0e-3; // lateral offset of the two CFS in x-direction
35  private double _lateralOffsetOfCFS_Y = 10.0e-3; // lateral offset of the two CFS in y-direction
36  .....
37  private double _samplingDistance_X = 50.0e-6; // sampling distance of output in x-direction
38  private double _samplingDistance_Y = 50.0e-6; // sampling distance of output in y-direction
39  .....
40  .....
41  /*
42  /* E N D of Definition
43  /*
44  .....
45  .....
46  #endregion
```

scroll a bit down

# Parameters to Be Specified in the Source Code

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<b>Parameter</b>	<b>Description</b>
<code>_lateralOffsetOfCFS_X</code>	lateral offset of the two CFS in x-direction
<code>_lateralOffsetOfCFS_Y</code>	lateral offset of the two CFS in y-direction
<code>_samplingDistance_X</code>	sampling distance of output in x-direction
<code>_samplingDistance_Y</code>	sampling distance of output in y-direction

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# The Module

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- Open the module `UseCase_CombineCFS.cs` from the Samples directory.
- The module asks the user for
  - first Chromatic Fields Set (CFS1)
  - second Chromatic Fields Set (CFS2)... which are to be combined.
- The output of the module is a new CFS.

# Description of the Algorithm

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- The two CFSs are combined with the following user defined settings.
- The sampling distance of the resulting CFS is according to the set input parameters.
- The position of CFS1 is:  
(-\_lateralOffsetOfCFS\_X/2, -\_lateralOffsetOfCFS\_Y/2)
- The position of CFS2 is:  
(\_lateralOffsetOfCFS\_X/2, \_lateralOffsetOfCFS\_Y/2)

# Example 1: Shift in y-Direction

Parameter	Value
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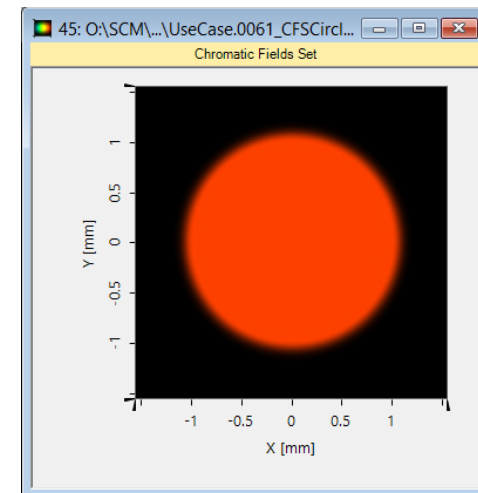
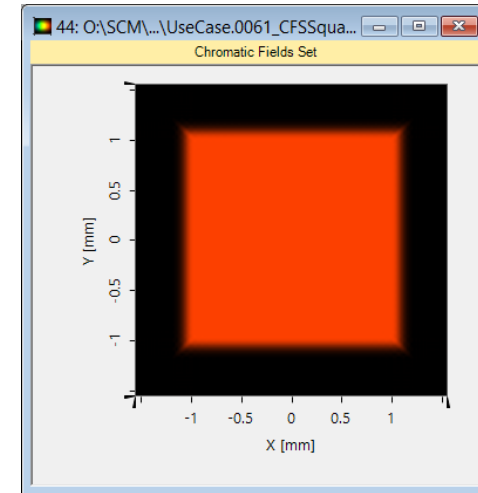
_lateralOffsetOfCFS_X	0.0
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_lateralOffsetOfCFS_Y	10e-3
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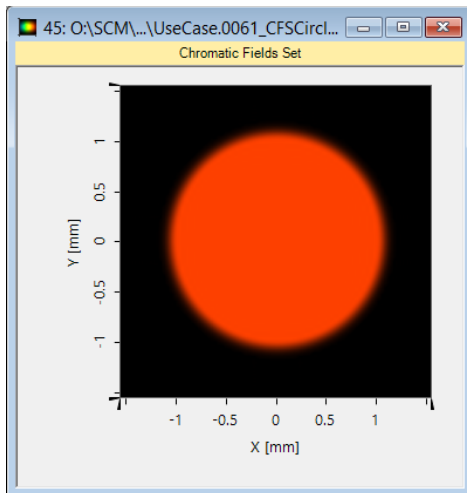
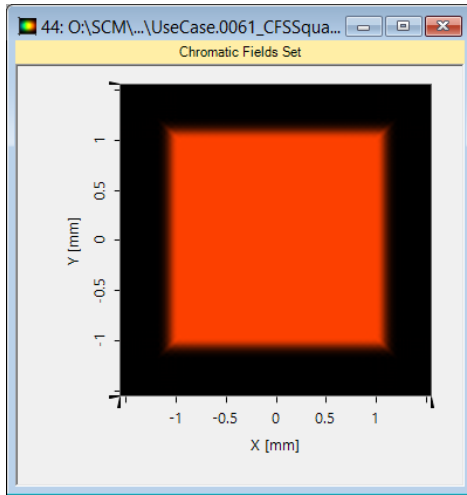
_samplingDistance_X	50e-6
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_samplingDistance_Y	50e-6
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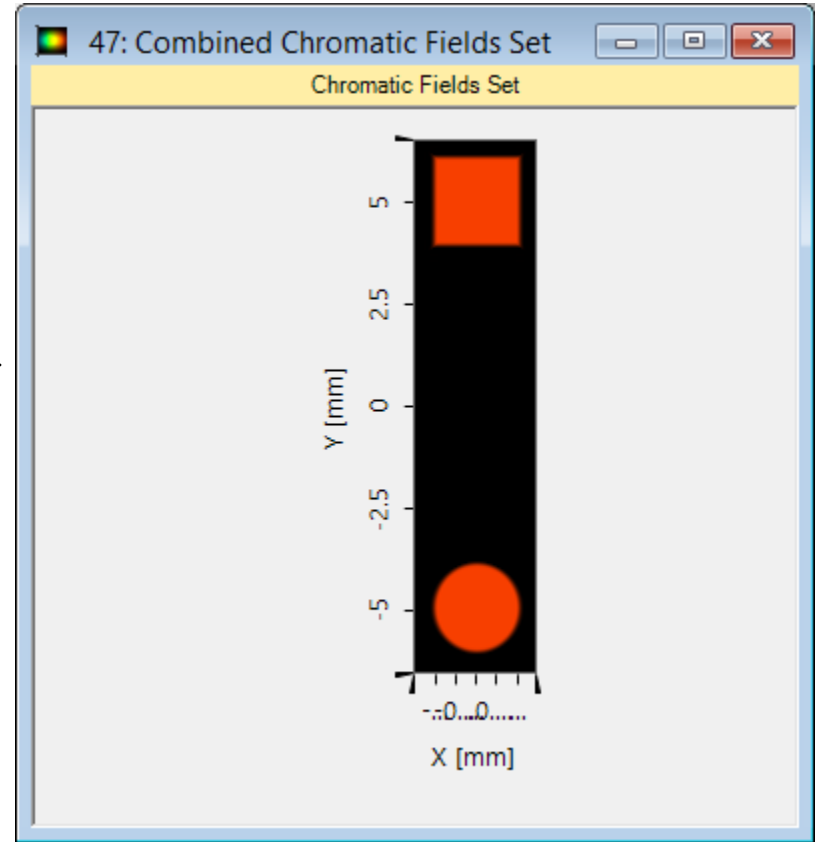
- We combine the two samples  
UseCase.0061\_CFSSquare.cfs and  
UseCase.0061\_CFSCircle.cfs



# Example 1: Shift in y-Direction



„Combine“

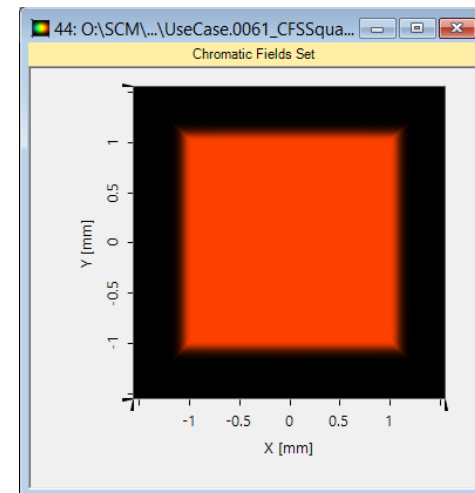
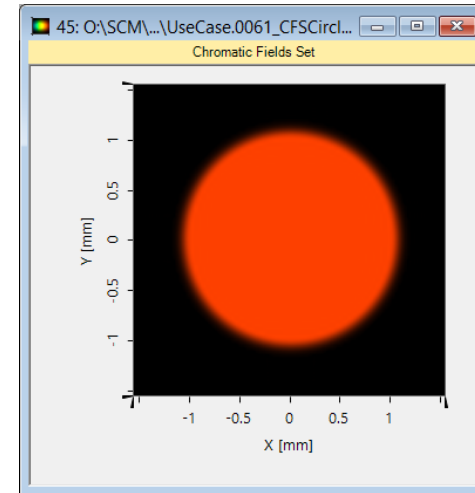




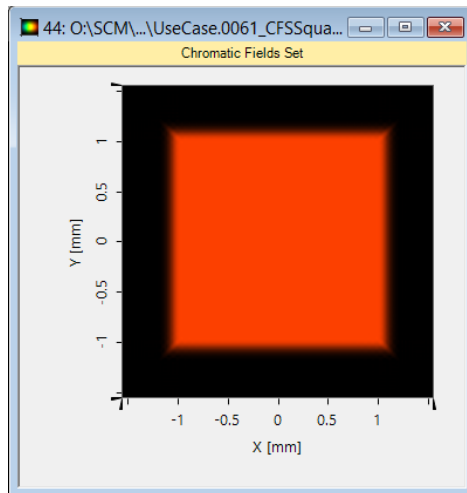
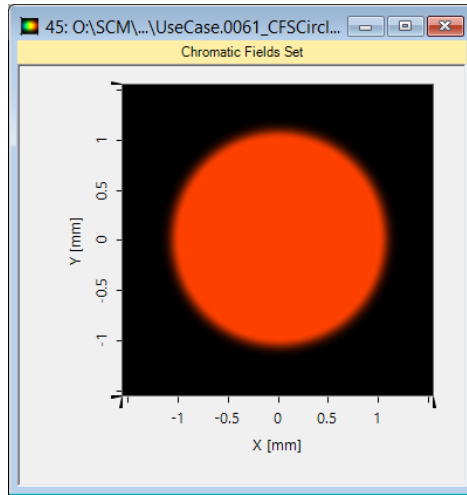
# Example 2: Shift in x- and y-Direction

Parameter	Value
_lateralOffsetOfCFS_X	20e-3
_lateralOffsetOfCFS_Y	10e-3
_samplingDistance_X	50e-6
_samplingDistance_Y	50e-6

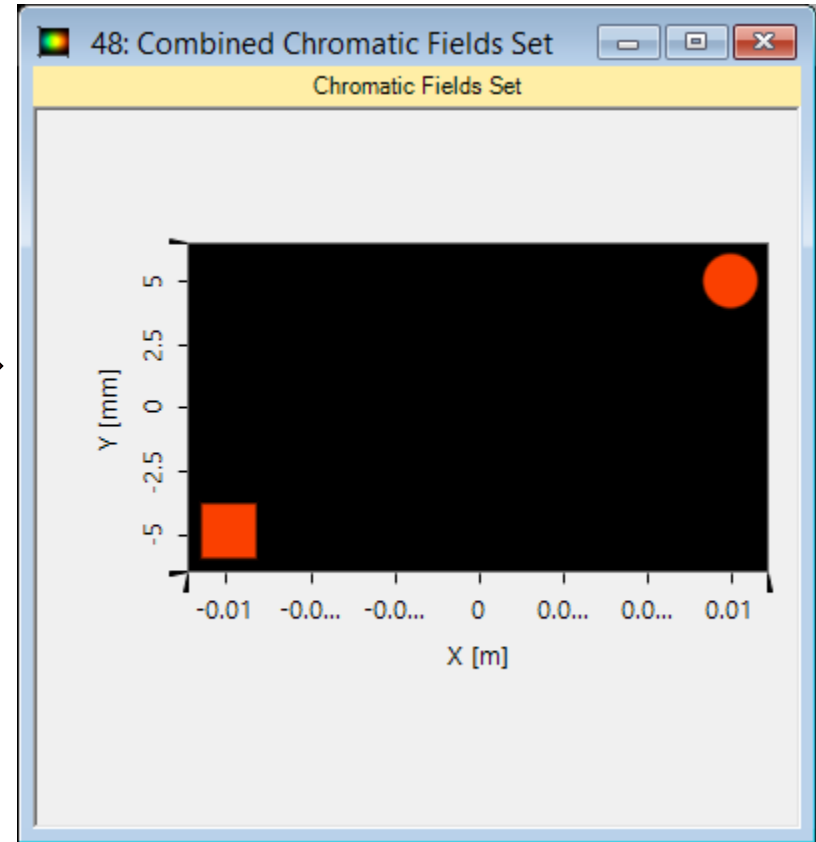
- We combine the two samples  
UseCase.0061\_CFSCircle.cfs and  
UseCase.0061\_CFSSquare.cfs



# Example 2: Shift in x- and y-Direction



„Combine“



# Summary

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- It is shown how two Chromatic Fields Sets can be combined.
- VirtualLab allows a single light source only. If two light sources are needed, their effect is computed for each source independently.
- These separate results can then be combined by the module presented in this use case.