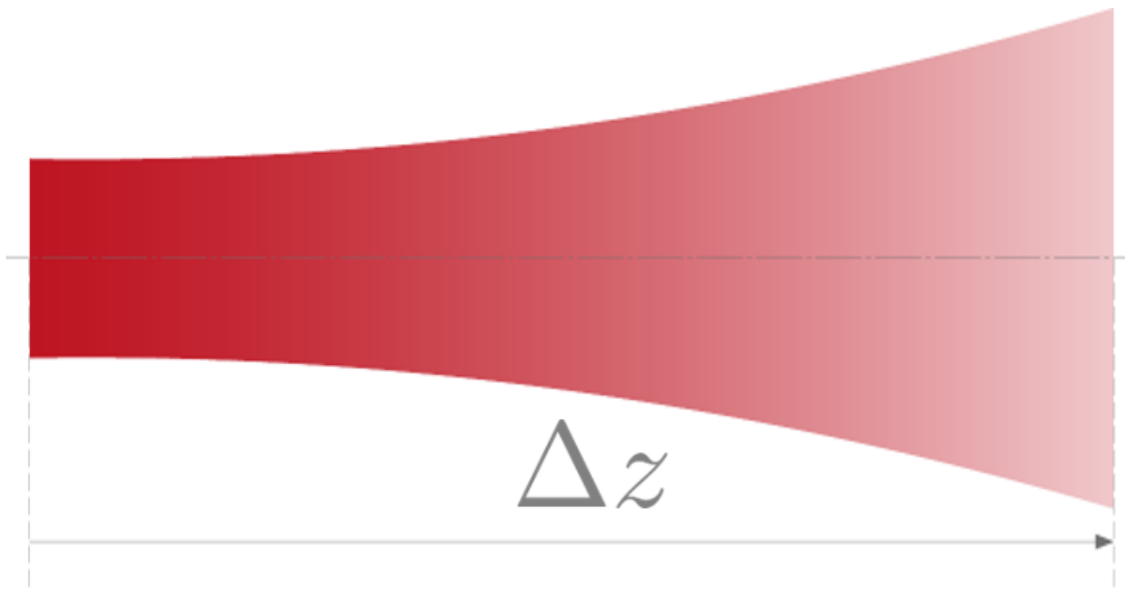


Programmable Component for Free-Space Propagation

Abstract



Customization via programming is one of VirtualLab Fusion's strongest suits. In this example, we present some functions which were used in the Classic Field Tracing engine to propagate an electromagnetic field that was represented in an equidistantly sampled form. We use these functions in a Programmable Component. Please bear in mind that VirtualLab currently offers more evolved propagation algorithms, this use case is merely intended as a programming example.

Programmable Component for Free-Space Propagation

Main Function (Equidistantly Sampled Data)

```
HarmonicFieldsSet hfsReturn = new HarmonicFieldsSet();  
for (int i = 0; i < InputField.Count; i++) {  
    ComplexAmplitude propagatedField;  
    if (UseFresnelPropagation) {  
        propagatedField = ElementaryFieldScalingPropagationOperators.Frt(/*[...]*/);  
    }  
    else {  
        propagatedField = ElementaryFieldScalingPropagationOperators.Spw(/*[...]*/);  
        propagatedField.SphericalPhaseRadius =  
            EstimateSamplingParameter.ComputeSphericalPhase(propagatedField);  
    }  
    hfsReturn.Add(propagatedField);  
}  
return hfsReturn;
```

Task:
Programme a component that propagates an electromagnetic field a given distance Δz .

See sample file for full code!

Δz

Document Information

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