

Available functions  
of Tensorial 4.0  
(for more details see  
Examples and  
Functions in Tensorial  
(in alphabetic order))

Using Tensorial	Tensorial Basics Output Format Customizing Tensorial
Examples	Flat and Curved Oblique Coordinates Arrays & Tensors Maxwell in Schwarzschild Dirac Equation Continuum Mechanics
Tensors & Format	Tensor Void UnnestTensor SetDerivativeSymbols SetPartialDisplay SetCovariantDisplay SetLieDisplay TensorLabelFormat ClearTensorLabelFormat
Tensors Shortcuts	DefineTensorShortcuts ClearTensorShortcuts TensorLabelFormat
Tensor Values	SetTensorValues SetTensorValueRules TensorValueRules ClearTensorValues NonzeroValueRules SelectedTensorRules DeclareZeroTensor
Base Indices	BaseIndices CompleteBaseIndices DeclareBaseIndices NDim GetBaseIndices BaseIndexQ
Index Routines	ParseTermIndices IndexParsingRules ExtractFreeIndices SymbolicIndexQ RawIndex RaiseIndex LowerIndex ReplaceIndex IndexChange NewIndexChangePatterns UpDownSwap
Index Flavors	IndexFlavors DeclareIndexFlavor ClearIndexFlavor ToFlavor IndexFlavorQ GetIndexFlavor
Index Expansions	SumExpansion ArrayExpansion EinsteinSum EinsteinArray PartialSum PartialArray EinsteinArgument
Tensor Simplifications & Slots	TensorSimplify SimplifyTensorSum PatternReplaceIndex IndexChange UpDownAdjust UpDownSwap PermuteTensorSlots ExtractTensorSlots SlotsToTensor ExtractTermSlots CanonicalUpDowns
Metric & Curvature	MetricSimplify CalculateChristoffels CalculateRiemannD SetRicciContraction CalculateRRRG CalculateWeylDown CovariantCommutator
Kronecker Routines	KroneckerEvaluate KroneckerContract FullKroneckerExpand PartialKroneckerExpand KroneckerAbsorb PermutationPseudotensor PermutationSymbolRule
Symmetry	SymmetrizeSlots SymmetrizePattern TensorSymmetry DeclarePatternSymmetries Symmetric AntiSymmetric
CircleTimes & Slots	CircleTimes CircleEvalRule EvaluateSlots BasisDotProductRules ReverseBasisDotProductRules EvaluateDotProducts ConstructDirectProduct GenerateBasisTensors
Arrays	ToArrayValues ContractArray DotTensorFactors ExpandDotArray DotOperate
Coordinates	UseCoordinates CoordinatesToTensors
Derivatives	PartialD ExpandPartialD NondependentPartialD UsePartialDChainRule CovariantD ExpandCovariantD SetScalarSingleCovariantD BasisExpandCovariantD TotalD ExpandTotalD UseTotalDChainRule ReversePartialTotalChainRule AbsoluteD ExpandAbsoluteD LieD ExpandLieD
Functions & Rules	LinearBreakout PushOnto MapLevelParts MapLevelPatterns UnnestTensor SymbolsToPatterns LHSSymbolsToPatterns HoldOp EvaluateAtPattern