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turn, an approximation of  
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method (FEM) is used to  
compute such  
approximations. Take, for  
example, a function  $u$  that  
may be the dependent  
variable in a PDE (i.e.,  
temperature, electric  
potential, pressure,  
etc.)Detailed Explanation  
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Method  
(FEM)Mathematical  
modeling and finite  
element analysis have  
been widely used for the

investigation of the  
biomechanics of the  
spine, and are considered  
to be one of the pillars of  
spine research together  
with in vitro testing and in  
vivo studies. Hundreds of  
finite element models  
aimed at predicting the  
biomechanical response  
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(FMT) is the subarea of  
model theory (MT) that  
deals with its restriction to  
interpretations on finite  
structures, which have a  
finite universe. Since  
many central theorems of  
model theory do not hold  
when restricted to finite  
structures, FMT is quite  
different from MT in its  
methods of proof.Model  
theory -  
WikipediaMATHEMATICAL  
MODEL SELECTION  
Behavioural assumptions  
introduced in order to

yield a solvable set of  
expressions but having  
the side effect of  
introducing  
approximations. An  
example of this is  
assuming linear elastic  
behaviour in the finite  
element method.3D-1D  
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Mathematical modeling and finite element analysis have been widely used for the investigation of the biomechanics of the spine, and are considered to be one of the pillars of spine research together with in vitro testing and in vivo studies. Hundreds of finite element models aimed at predicting the biomechanical response of the spine under both healthy and pathological conditions as well as after

the implantation of surgical devices have been discussed in the literature.

Numerical modeling (geology) - Wikipedia

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Finite model theory (FMT)

is the subarea of model

theory (MT) that deals

with its restriction to interpretations on finite structures, which have a finite universe. Since many central theorems of model theory do not hold when restricted to finite structures, FMT is quite different from MT in its methods of proof.

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various methods, the finite element method (FEM) is perhaps the most general since it can be applied to both linear and

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method. Variable – polynomial. hpk-FEM.

**Mathematical and Finite Element Modeling - ScienceDirect**

MATHEMATICAL MODEL SELECTION Behavioural assumptions introduced in order to yield a solvable set of expressions but having the side effect of introducing approximations. An example of this is assuming linear elastic behaviour in the finite element method.

*Finite element method - Wikipedia*

Finite element, finite volume, finite difference and spectral methods have all been used in modeling mantle convection, and almost every model used an Eulerian grid. Due to the simplicity and speed of the finite-difference and spectral methods, they were used in some early models, but finite-element or finite volume methods were generally adopted in the 2010s. [2]  
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Differential Equations with Generalized Solutions, Springer, 2014. Textbook:  
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The solution to the numerical model equations are, in turn, an approximation of the real solution to the PDEs. The finite element method (FEM) is used to compute such approximations. Take, for example, a function  $u$  that may be the dependent variable in

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