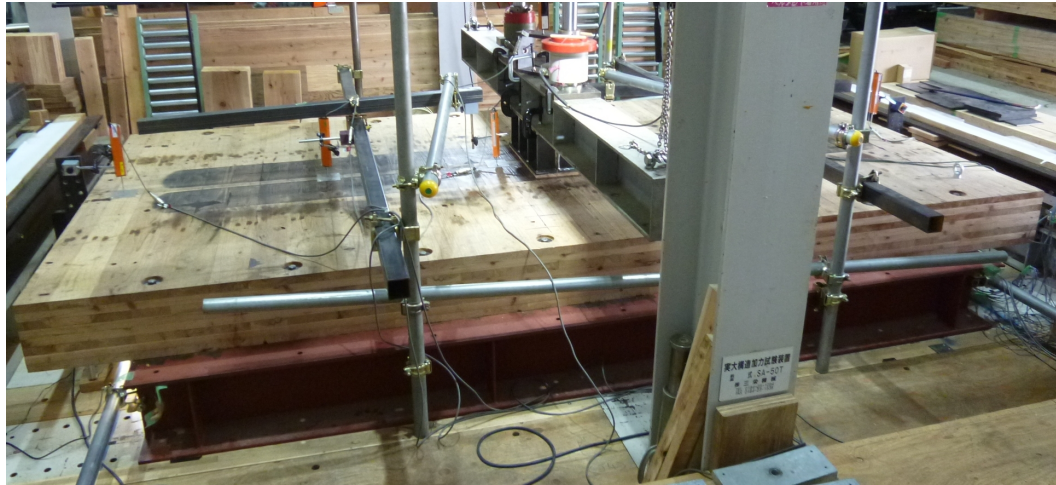


弾塑性モデルを用いたCLT床版の剛性評価

13740 藤田智郁

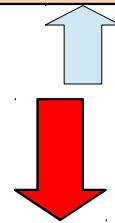
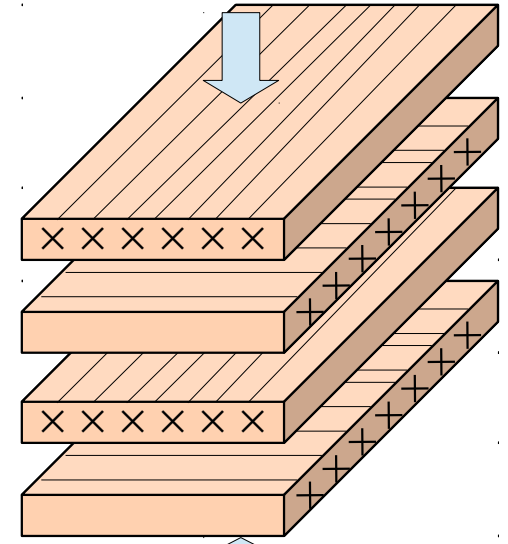
CLT(Cross Laminated Timber)
直交集成材



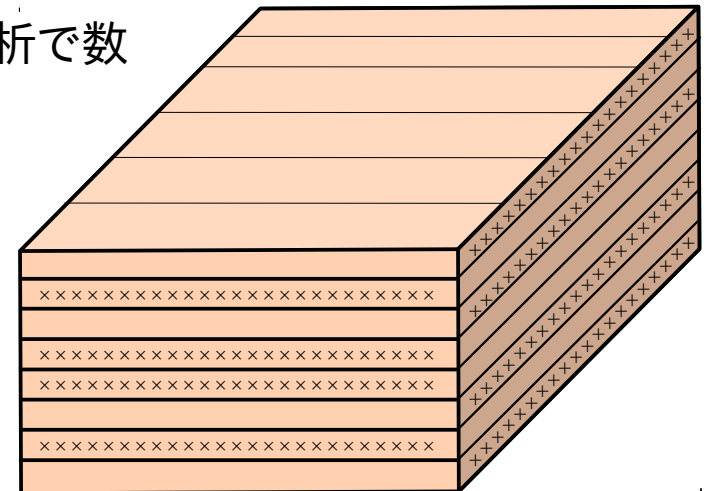
1層ごとに繊維方向
を直交させて積層

よって

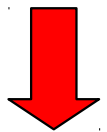
2方向の曲げ剛性
に期待できる



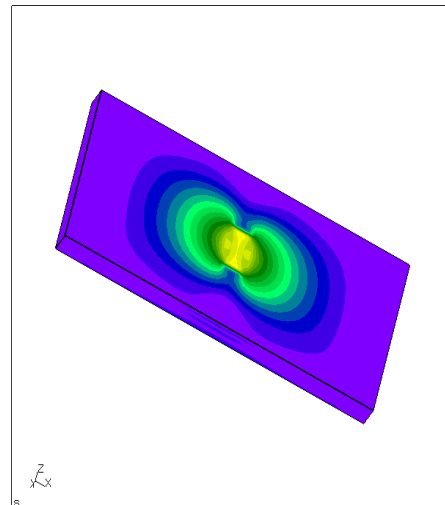
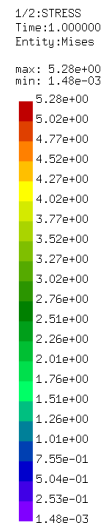
有限要素解析で数
値モデル化



- ・ 弾性挙動の表現
- ・ 破壊の表現

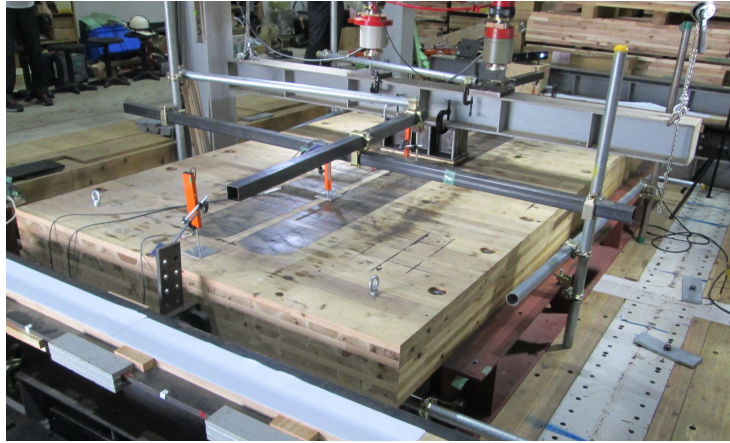


数値解析



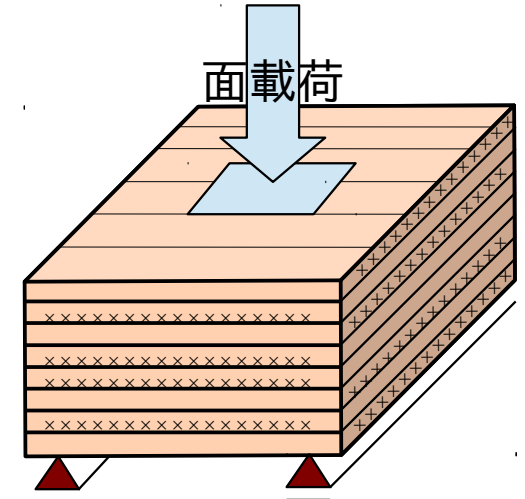
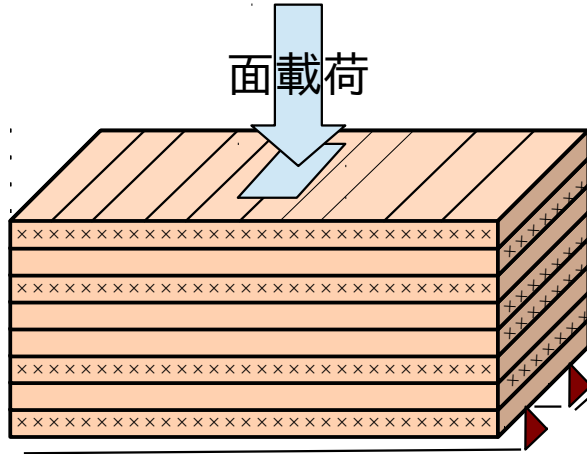
ez8.frd

解析方法

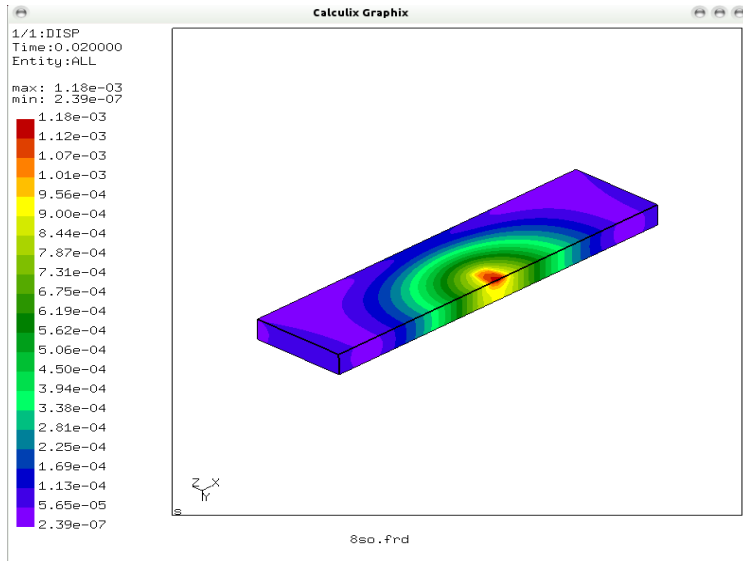


強軸

弱軸



FEMで1層ごとに材料定数を設定

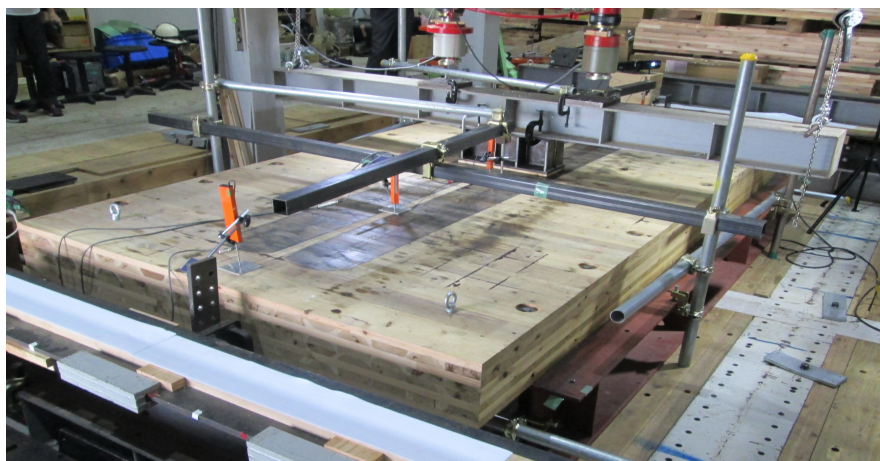
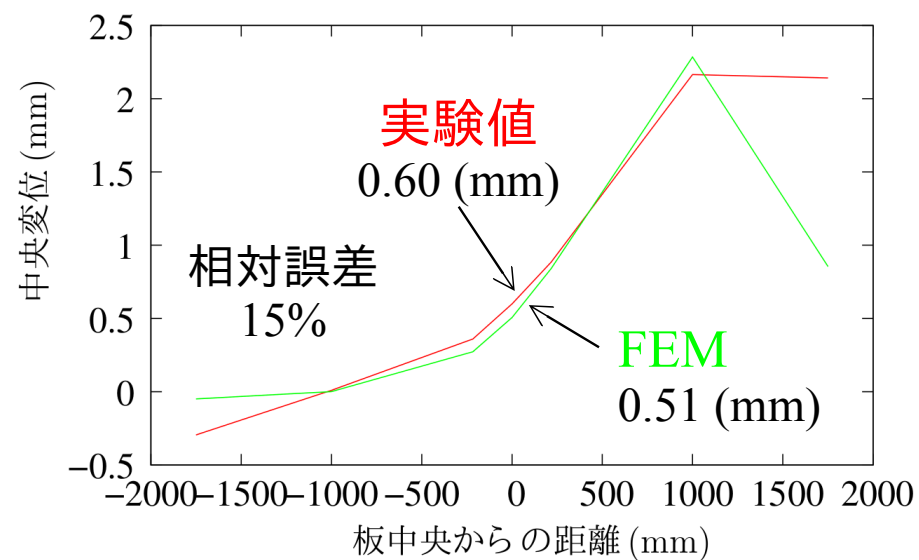
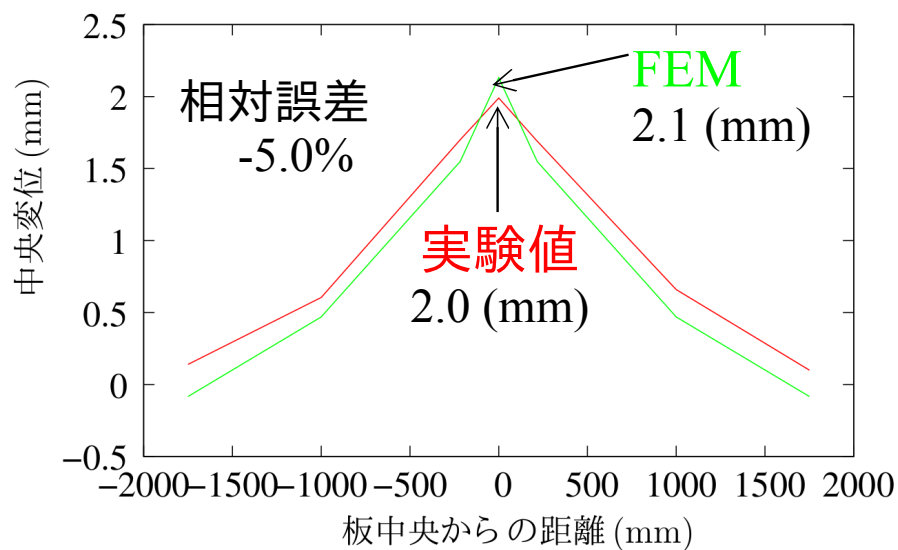
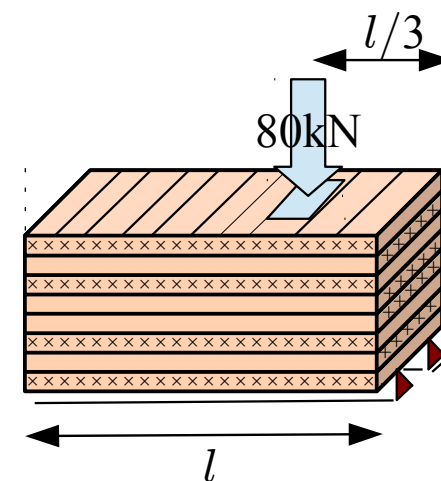
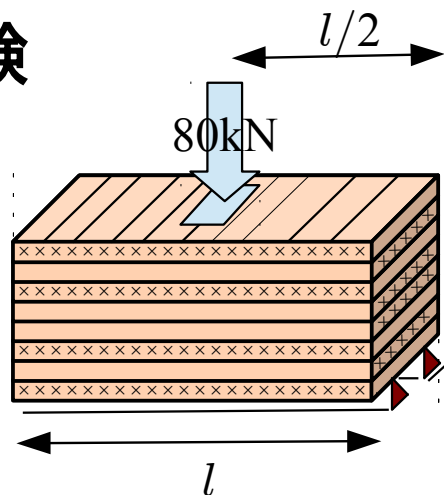


| |
|--------------|
| 5.0GPa (測定値) |
| 0.2GPa (測定値) |
| 5.0GPa (測定値) |
| 0.2GPa (測定値) |
| 0.2GPa (測定値) |
| 5.0GPa (測定値) |
| 0.2GPa (測定値) |
| 5.0GPa (測定値) |
| 0.2GPa (測定値) |
| 5.0GPa (測定値) |

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| 0.2GPa (測定値) |
| 5.0GPa (測定値) |
| 0.2GPa (測定値) |
| 5.0GPa (測定値) |
| 5.0GPa (測定値) |
| 0.2GPa (測定値) |
| 5.0GPa (測定値) |
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| 5.0GPa (測定値) |
| 0.2GPa (測定値) |

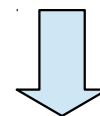
直交異方性材料として, 異方性要素でモデル化

静的載荷試験



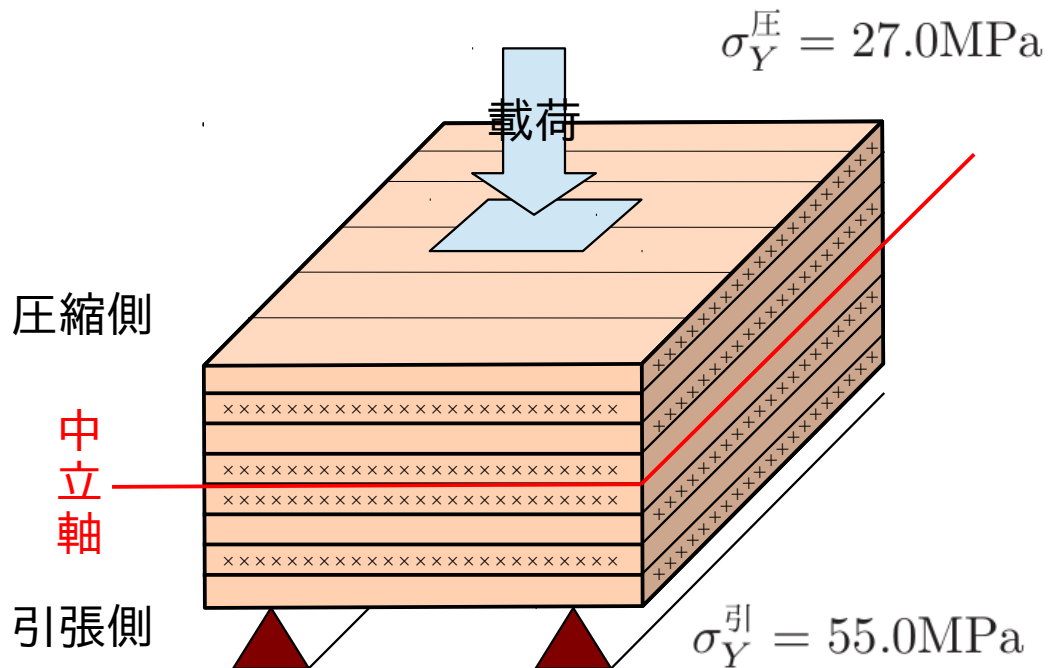
支点部のずれ

実際は、H形鋼にボルト固定
FEMは、単純支持

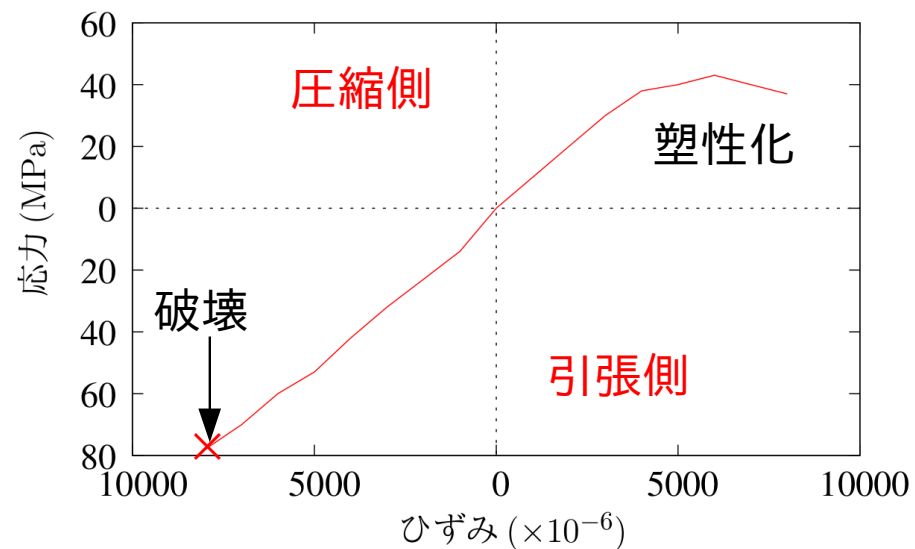


H形鋼に近いところが拘束
が大きくなっていると考えら
れる。

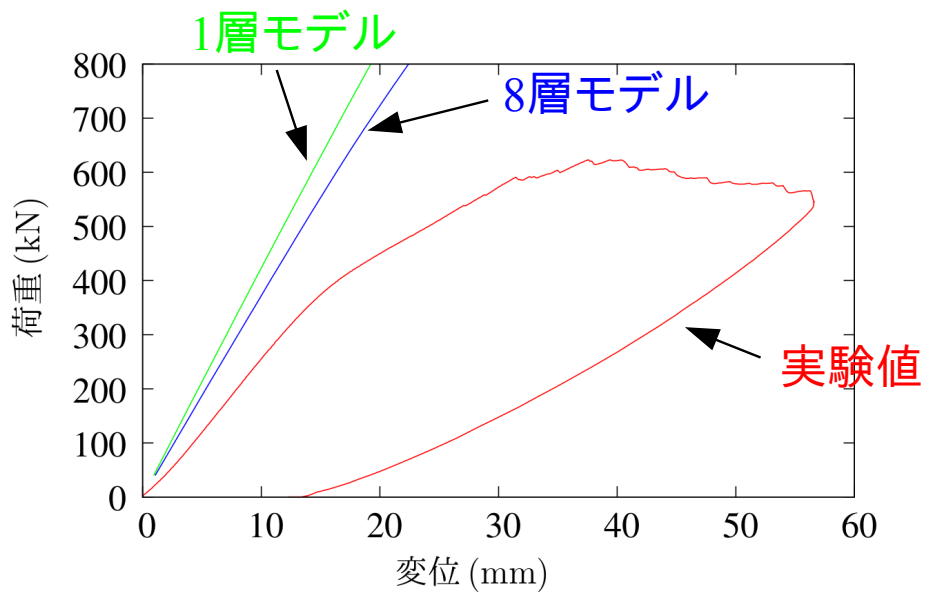
破壊試験



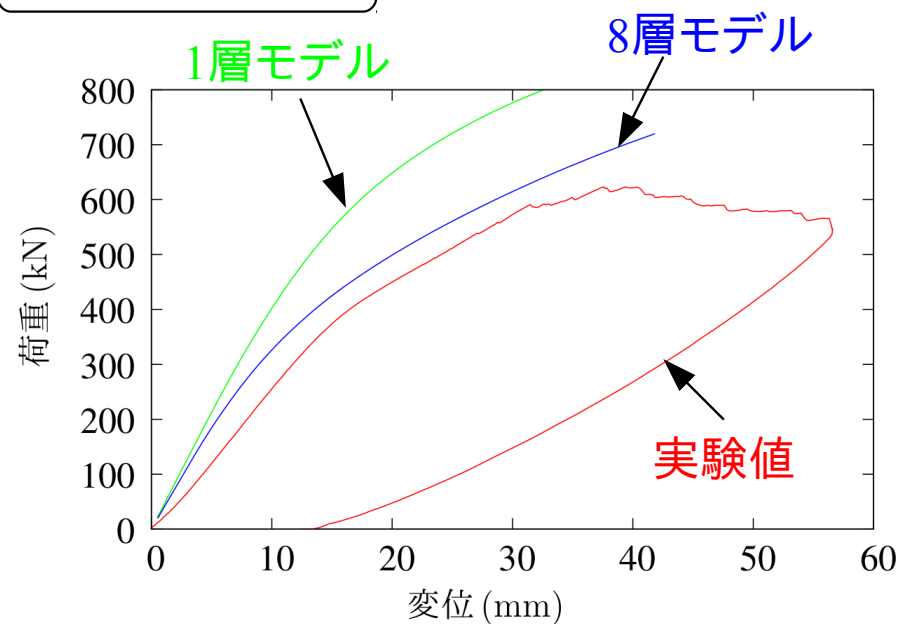
実際の木材の降伏・破壊



公称値解析

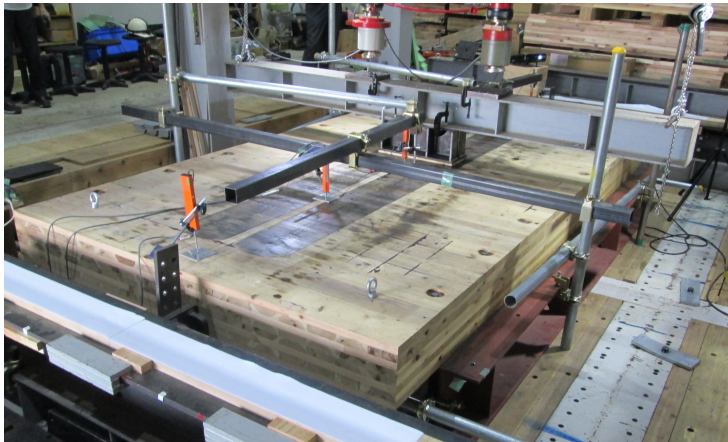


公称値1/4解析



まとめ

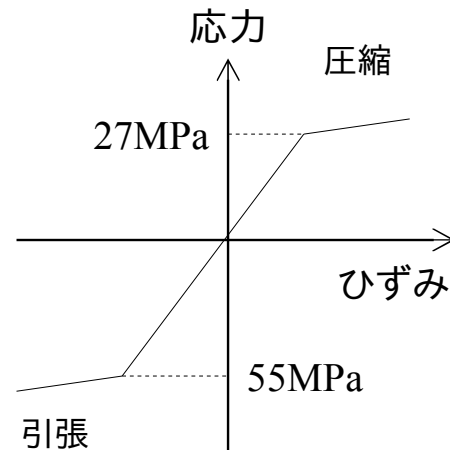
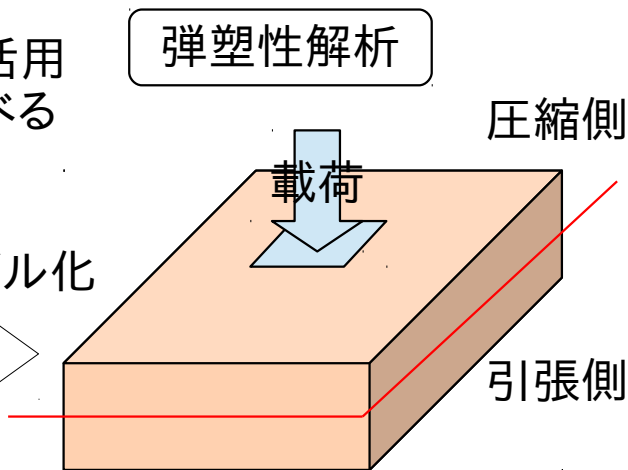
建築で普及しているCLT



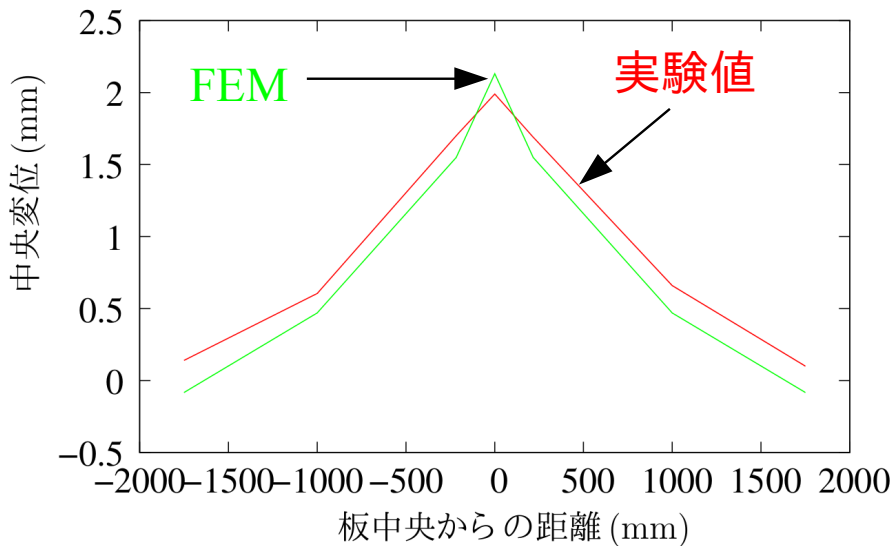
土木での活用
挙動を調べる

弾塑性解析

FEMでモデル化

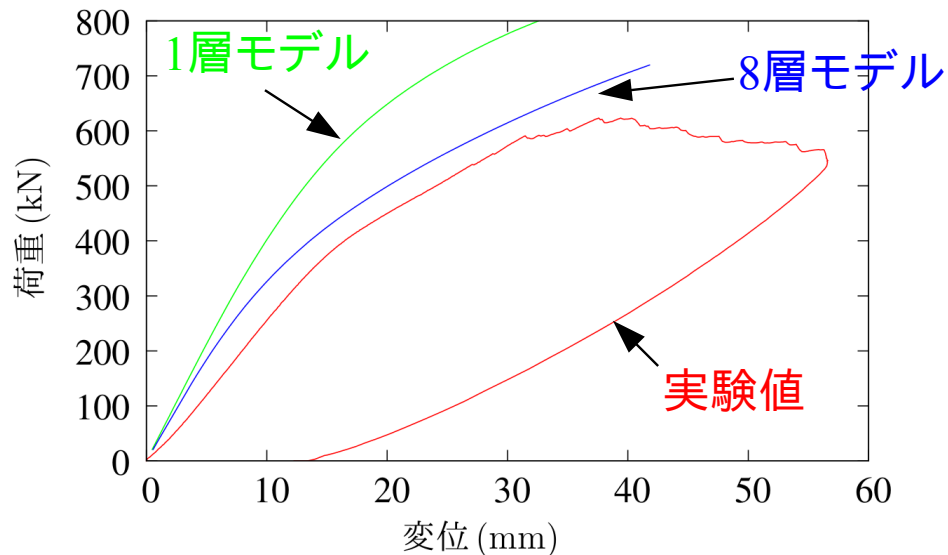


線形解析

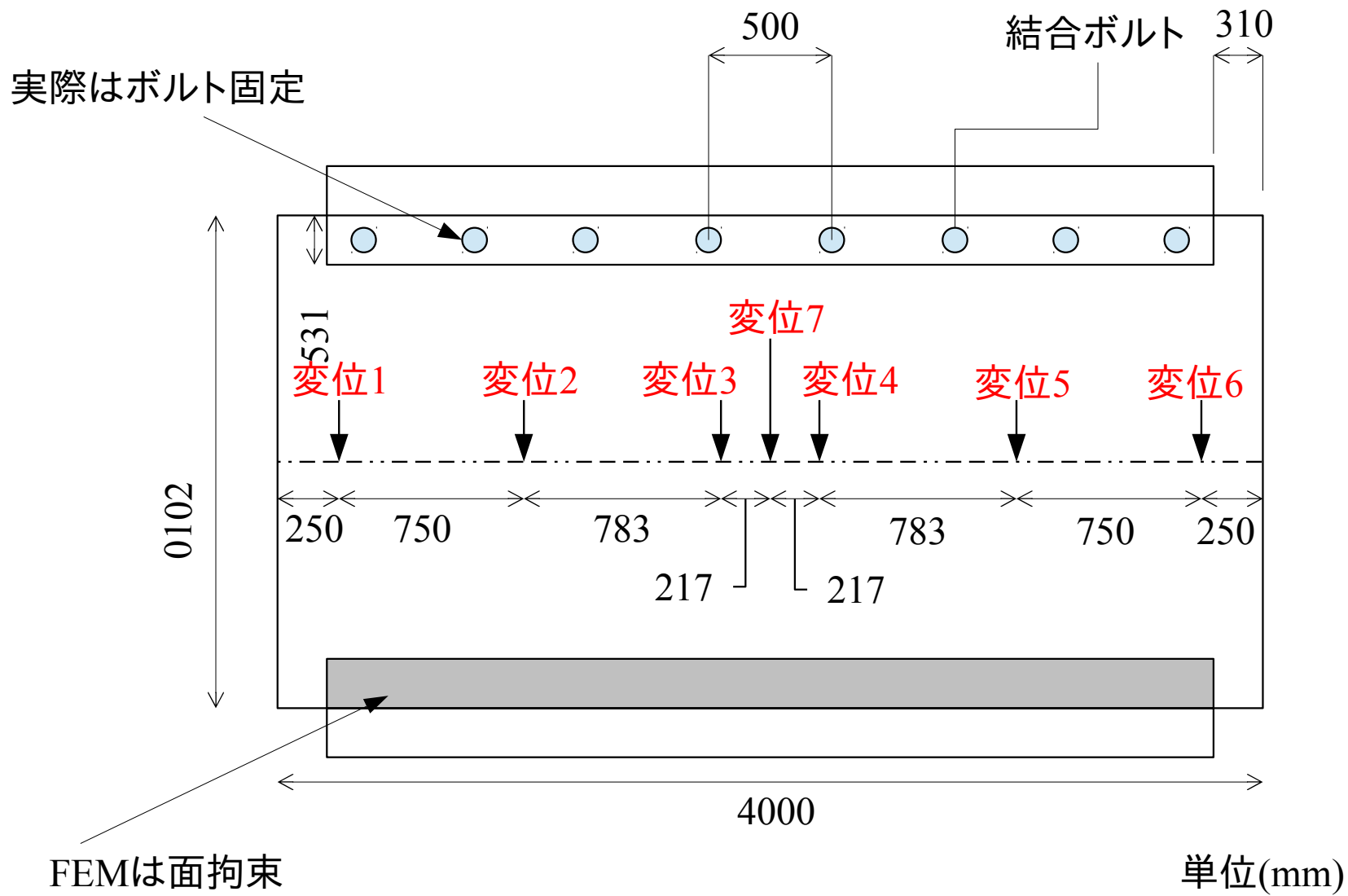


実験値に近い値を得る.

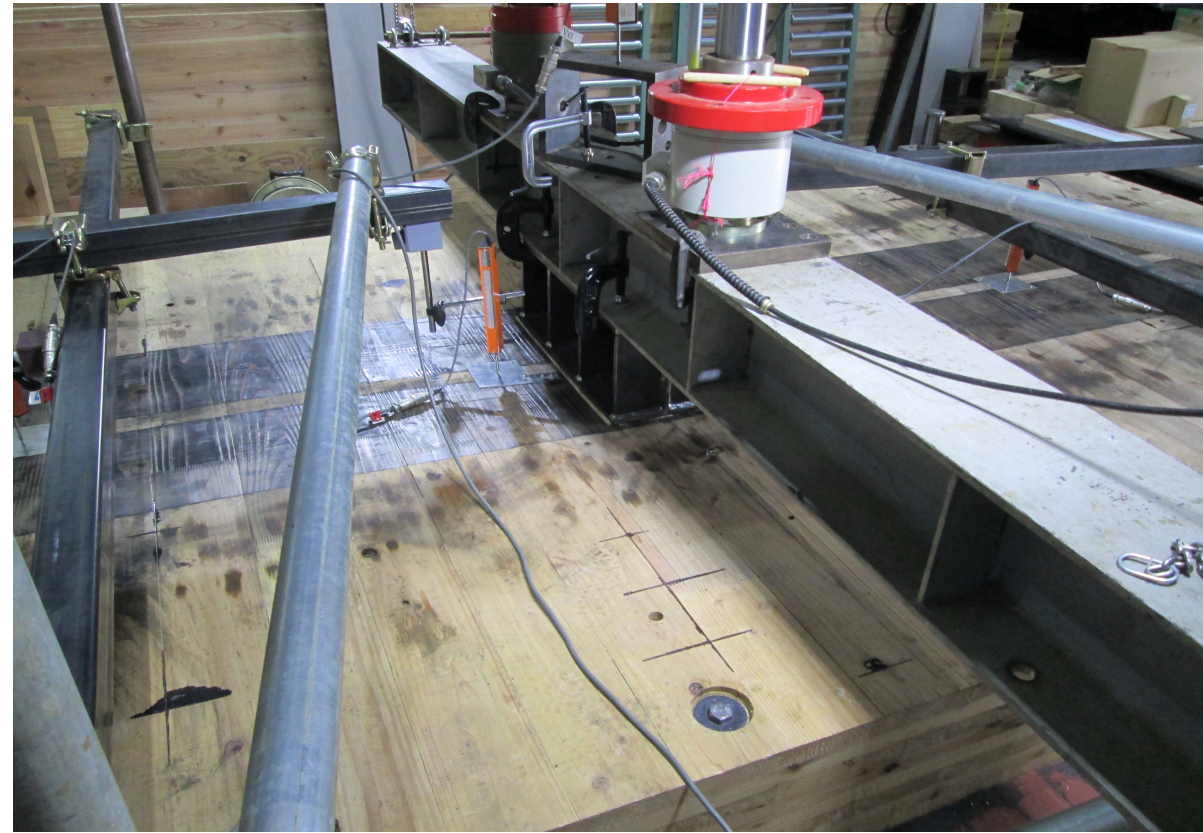
弾塑性解析



公称値の1/4などにすると、
実験値と近い挙動を得る.



上から



下から

