

看到了两种选择yield的方式，但都和第二不变量有关。

1.



```
# first define strain rate tensor
```

```
strainRateFn = fn.tensor.symmetric( velocityField.fn_gradient )
```

```
strainRate_2ndInvariantFn = fn.tensor.second_invariant(strainRateFn)
```

```
# now compute a viscosity assuming yielding
```

```
min_viscosity = 0.001
```

```
yieldingViscosityFn = 0.5 * yieldStressFn /  
(strainRate_2ndInvariantFn+1.0e-18)
```

```
viscosityFn = fn.exception.SafeMaths(  
fn.misc.max(fn.misc.min(yieldingViscosityFn,
```

```
backgroundViscosityFn),  
min_viscosity))
```

2. 板片上的yield，给非核心的板片。

```
upperMantleViscosity = 1.0
```

```
lowerMantleViscosity = 100.0
```

```
slabViscosity = 500.0
```

```
coreViscosity = 500.0
```

```
# The yeilding of the upper slab is dependent on the strain rate.
```

```
strainRate_2ndInvariant = fn.tensor.second_invariant(  
fn.tensor.symmetric(  
velocityField.fn_gradient ))
```

```
cohesion = 0.06
vonMises = 0.5 * cohesion / (strainRate_2ndInvariant+1.0e-18)

# The upper slab viscosity is the minimum of the 'slabViscosity' or
the 'vonMises'
#safeMaths保证不被零除，以及检查其他错误。
slabYieldvisc = fn.exception.SafeMaths( fn.misc.min(vonMises,
slabViscosity) )
```