

## PRIMER

Geometrijske i mehaničke karakteristike štap i spoljašnje dejstvo su prikazani na slici ispod. Proračun je sproveden metodom početnih parametara (program Stap). Uporedna analiza je sprovedena metodom konačnih elemenata u programu SAP2000 v15 (štap je podeljen na 10 konačnih elemenata i uticaj aksijalnih deformacija i deformacija smicanja je zanemaren).

### Ulazni podaci za analizu:

Stap - C:/Documents and Settings/andrija/Desktop/Primer

Datoteka Analiza Pomoc

Ulaz Izlaz Grafik

duzina izvijanja  $L_i$  = 5

Pkr - Euler

$L$  = 5

$E$  = 200000000.0

$I$  = 0.00000012554

$v(0)$  = 0.0

$v(L)$  = 0.0

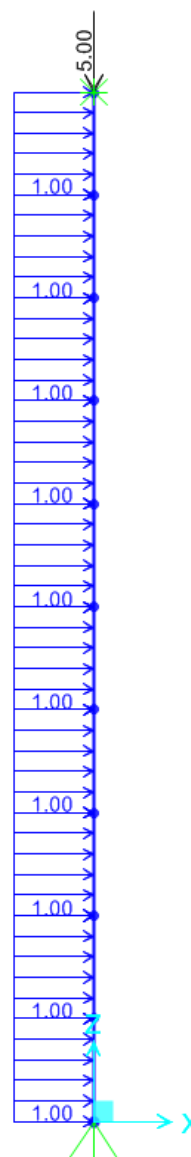
br. polja 10

$M_a$  = 0.0  $M_b$  = 0.0  $p$  = 1.0

$S$  = 5.0 Pritisak

$P$  = 0.0  $a$  = 0.5

$M$  = 0.0  $b$  = 0.5



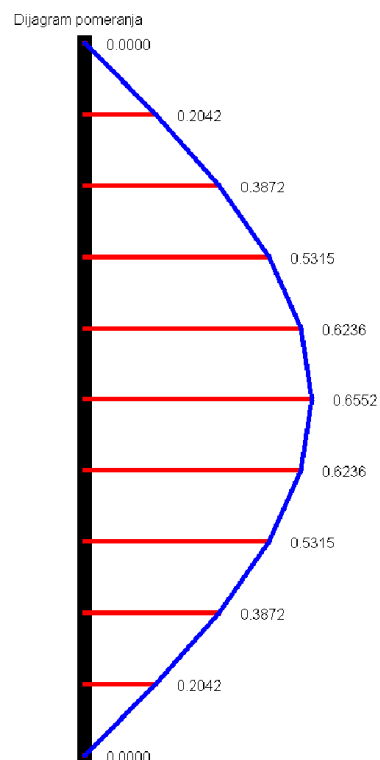
### Rezultati analiza

#### Kritična sila

|          | Program STAP<br>(Euler-ov obrazac) | SAP2000 v15 |
|----------|------------------------------------|-------------|
| Pkr [kN] | 9.9122                             | 9.9125      |

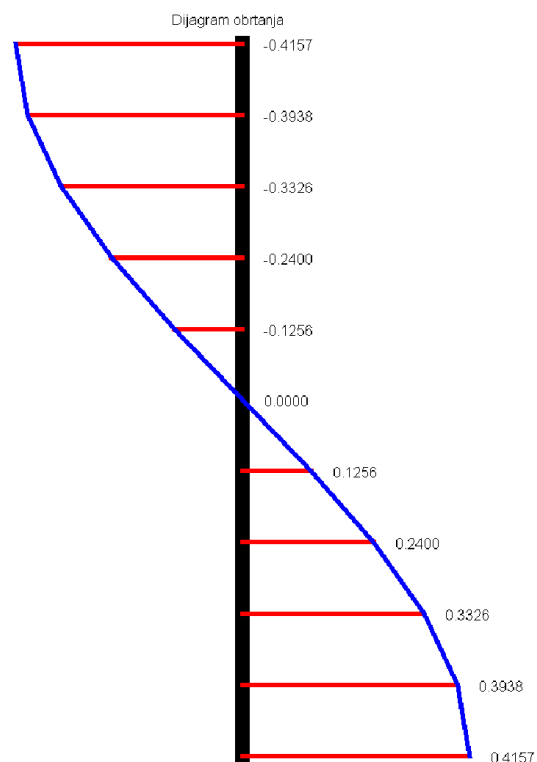
### Dijagram horizontalnih pomeranja čvorova

|       | Horizontalno pomeranje čvora [m] |             |
|-------|----------------------------------|-------------|
| x [m] | Program STAP                     | SAP2000 v15 |
| 0.0   | 0.0000                           | 0.0000      |
| 0.5   | 0.2042                           | 0.2041      |
| 1.0   | 0.3872                           | 0.3872      |
| 1.5   | 0.5315                           | 0.5315      |
| 2.0   | 0.6236                           | 0.6236      |
| 2.5   | 0.6552                           | 0.6552      |
| 3.0   | 0.6236                           | 0.6236      |
| 3.5   | 0.5315                           | 0.5315      |
| 4.0   | 0.3872                           | 0.3872      |
| 4.5   | 0.2042                           | 0.2041      |
| 5.0   | 0.0000                           | 0.0000      |



### Dijagram obrtanja čvorova

|       | Obrtanje čvora [rad] |             |
|-------|----------------------|-------------|
| x [m] | Program STAP         | SAP2000 v15 |
| 0.0   | 0.4157               | 0.4157      |
| 0.5   | 0.3938               | 0.3938      |
| 1.0   | 0.3326               | 0.3326      |
| 1.5   | 0.2400               | 0.2400      |
| 2.0   | 0.1256               | 0.1256      |
| 2.5   | 0.0000               | 0.0000      |
| 3.0   | -0.1256              | -0.1256     |
| 3.5   | -0.2400              | -0.2400     |
| 4.0   | -0.3326              | -0.3326     |
| 4.5   | -0.3938              | -0.3938     |
| 5.0   | -0.4157              | -0.4157     |



## Dijagram momenata savijanja

|       | Moment savijanja [kNm] |             |
|-------|------------------------|-------------|
| x [m] | Program STAP           | SAP2000 v15 |
| 0.0   | 0.0000                 | 0.0000      |
| 0.5   | 2.1458                 | 2.1457      |
| 1.0   | 3.9362                 | 3.9361      |
| 1.5   | 5.2825                 | 5.2824      |
| 2.0   | 6.1180                 | 6.1178      |
| 2.5   | 6.4011                 | 6.4010      |
| 3.0   | 6.1180                 | 6.1178      |
| 3.5   | 5.2825                 | 5.2824      |
| 4.0   | 3.9362                 | 3.9361      |
| 4.5   | 2.1458                 | 2.1457      |
| 5.0   | 0.0000                 | 0.0000      |

Dijagram momenata savijanja

