

ShockPolar

April 3, 2024

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[8]: %%capture
import CompFlowCalcs as CFC
import math
import numpy as np
import matplotlib.pyplot as plt
```

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[13]: machs = [1.25, 1.5, 2, 3, 4]
gamma = 1.4
```

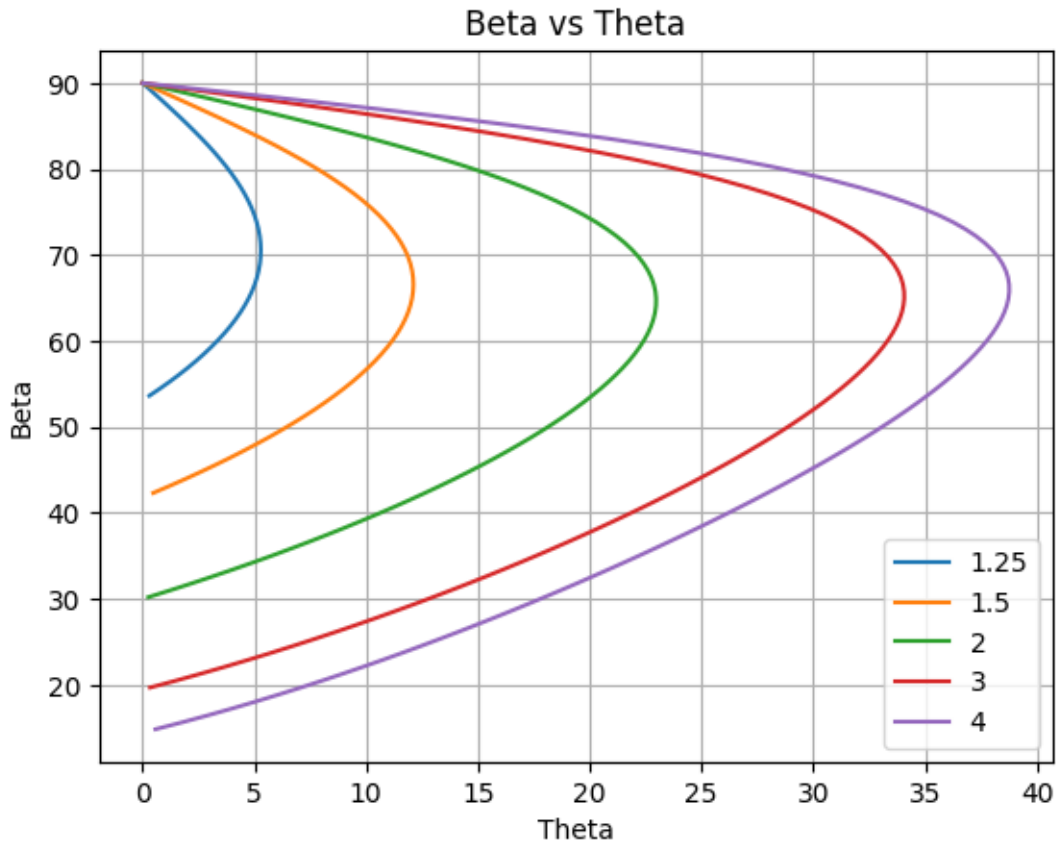
```
[14]: betas = np.linspace(math.radians(10), math.pi / 2, 100)

for mach in machs:
    results = []

    for beta in betas:
        res = CFC.ThetaBetaMach(gamma, mach=mach, beta=beta)
        if res.theta > 0:
            results.append(res)

    bs = [math.degrees(res.beta) for res in results]
    ts = [math.degrees(res.theta) for res in results]

    plt.plot(ts, bs, label=mach) # Swap the order of the variables
plt.xlabel('Theta') # Update the label
plt.ylabel('Beta') # Update the label
plt.title('Beta vs Theta') # Update the title
plt.legend() # Add a legend
plt.grid(True) # Add a grid
plt.show()
```



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Executing <Task pending name='Task-4' coro=<Kernel.dispatch_queue() running at
/Users/wmac/Library/Python/3.12/lib/python/site-
packages/ipykernel/kernelbase.py:524> wait_for=<Future pending
cb=[Task.task_wakeup()] created at
/Users/wmac/Library/Python/3.12/lib/python/site-packages/tornado/queues.py:248>
cb=[IOLoop.add_future.<locals>.<lambda>() at
/Users/wmac/Library/Python/3.12/lib/python/site-packages/tornado/ioloop.py:685]
created at /Library/Frameworks/Python.framework/Versions/3.12/lib/python3.12/asy
ncio/tasks.py:685> took 1.027 seconds

```

[]: