

Regione stabilita metodo di Collatz

Fattore amplificazione

```
> F := 1+s+s^2/2 ;
```

$$F := 1 + s + \frac{1}{2} s^2 \quad (1)$$

```
> FC := subs(s=a+I*b,F) ;
```

$$FC := 1 + a + Ib + \frac{1}{2} (a + Ib)^2 \quad (2)$$

```
> RE := simplify(FC+conjugate(FC))/2 assuming a::real, b::real;  
IM := simplify((FC-conjugate(FC))/(2*I)) assuming a::real, b::real;
```

$$RE := \frac{1}{2} a^2 - \frac{1}{2} b^2 + a + 1$$

$$IM := b (1 + a) \quad (3)$$

```
> REGION := simplify(RE^2+IM^2) ;
```

$$REGION := \frac{1}{2} a^2 b^2 + b^2 a + \frac{1}{4} a^4 + a^3 + 2 a^2 + \frac{1}{4} b^4 + 2 a + 1 \quad (4)$$

```
> with(plots):
```

```
> contourplot(REGION,a=-3..1,b=-3..3,filledregions = true,contours=  
[1]) ;
```

