1 Benchmark on SC30

1.1 Fixed Flat Phase

1.1.1 RE and IM

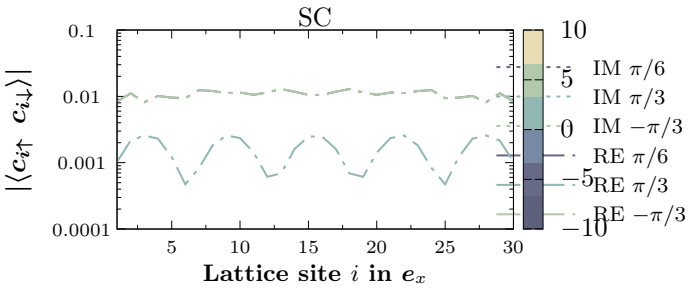

Figure 1: Benchmark on SC30 with fixed flat phase with $\mu = 2.75$.

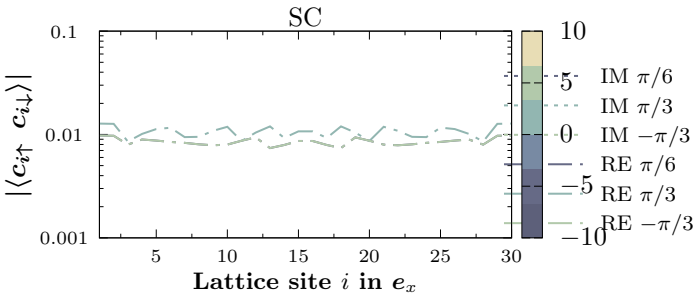

Figure 2: Benchmark on SC30 with fixed flat phase with $\mu = 0.75$.

1.1.2 PHASE

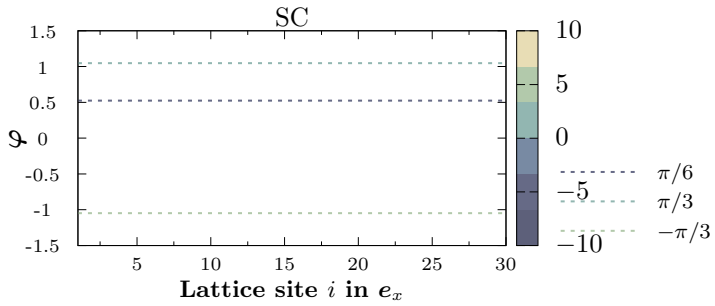

Figure 3: Benchmark on SC30 with fixed flat phase with $\mu = 2.75$.

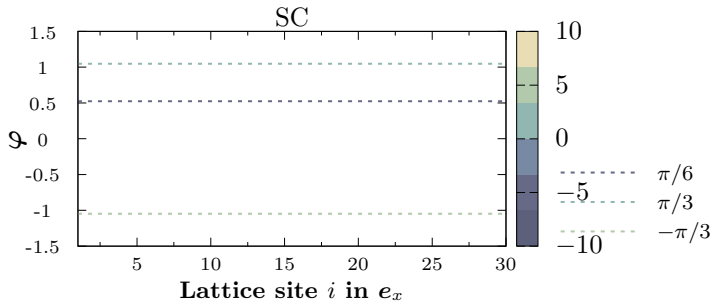

Figure 4: Benchmark on SC30 with fixed flat phase with $\mu = 0.75$.

1.1.3 Current

Looking at the files the currents are very small ($e - 17$). Moreover the current continuity is fullfilled. We get 0 at all points.

1.2 Fixed Linear Phase of 117°

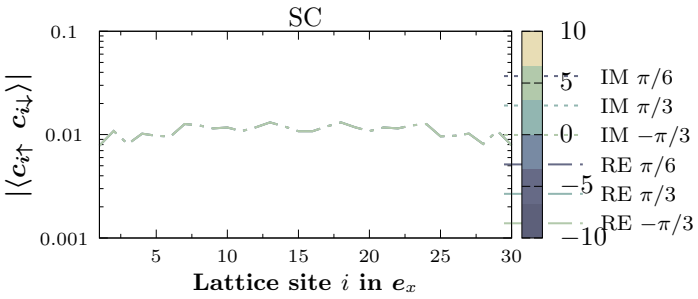

Figure 5: Benchmark on SC30 with fixed flat phase with $\mu = 2.75$.

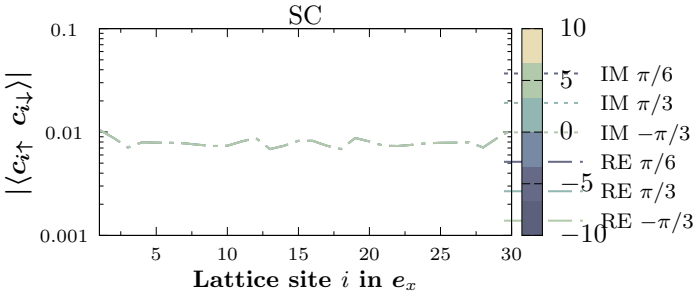

Figure 6: Benchmark on SC30 with fixed flat phase with $\mu = 0.75$.

1.2.1 PHASE

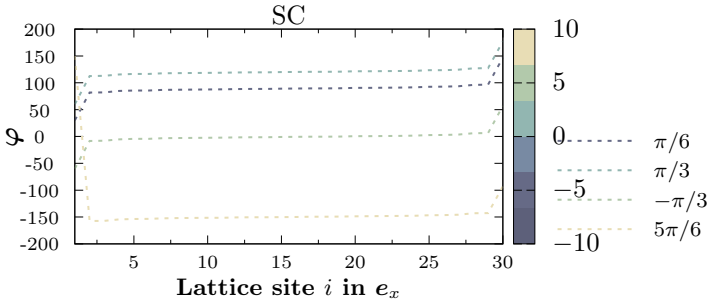

Figure 7: Benchmark on SC30 with fixed flat phase with $\mu = 2.75$.

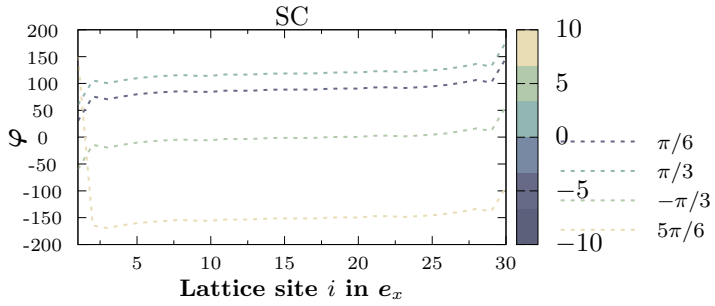

Figure 8: Benchmark on SC30 with fixed flat phase with $\mu = 0.75$.

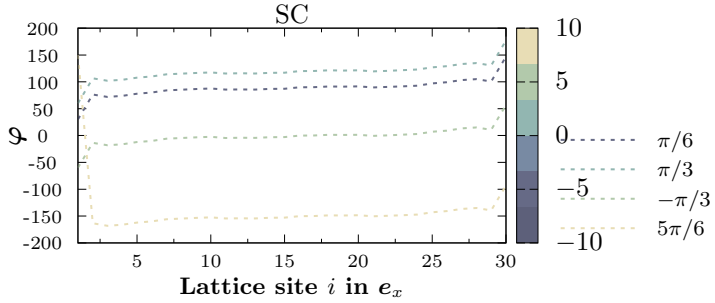

Figure 9: Benchmark on SC30 with fixed flat phase with $\mu = 0.65$.

So the orginal phase dont realy matters, the system is sensible under changes of μ and φ.

The diagonals at $\pi/3$ under different μ for different φ are shown in the following figures.
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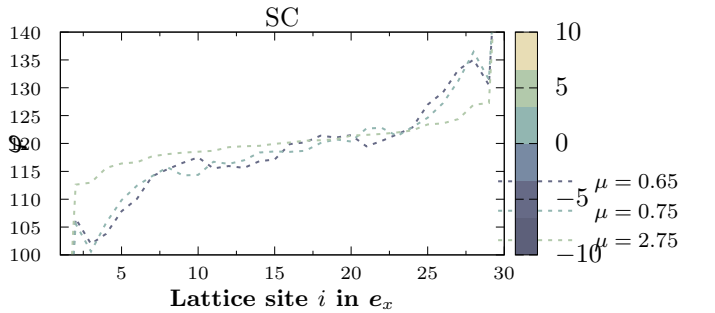

Figure 10: Benchmark on SC30 with a phase gradient of $\varphi = 117°$.

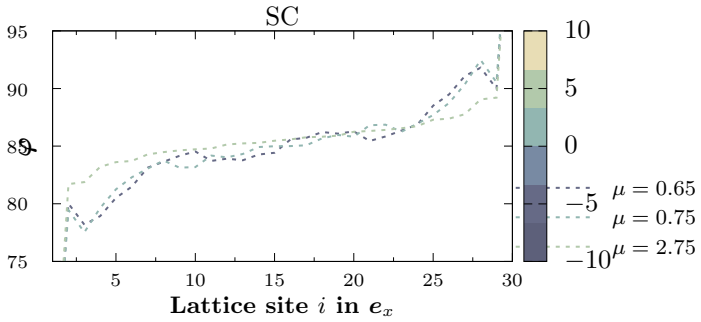

Figure 11: Benchmark on SC30 with a phase gradient of $\varphi = 50°$.

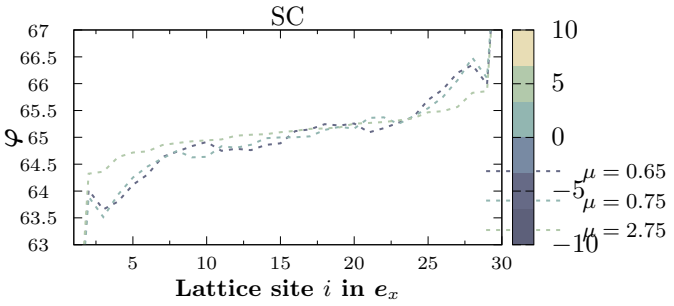

Figure 12: Benchmark on SC30 with a phase gradient of $\varphi = 10°$.

1.2.2 Current

$\mu = 0.75$ ..

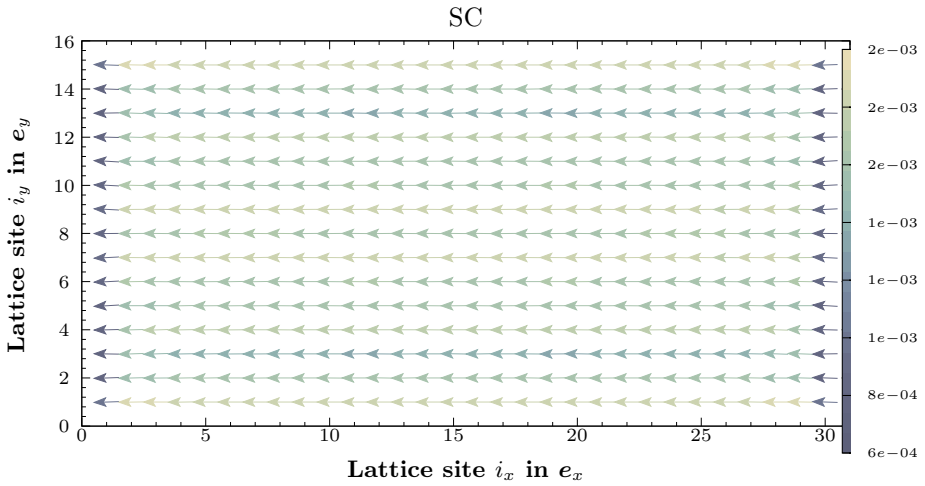

Figure 13: Benchmark on SC30 with fixed flat phase with $\mu = 0.75$. 1.0472 rad *New.*.

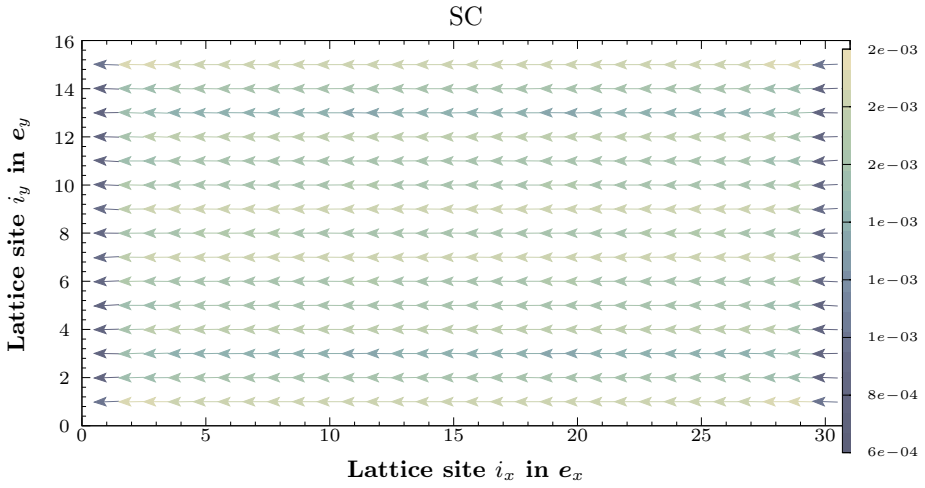

Figure 14: Benchmark on SC30 with fixed flat phase with $\mu = 0.75$. -1.0472 rad

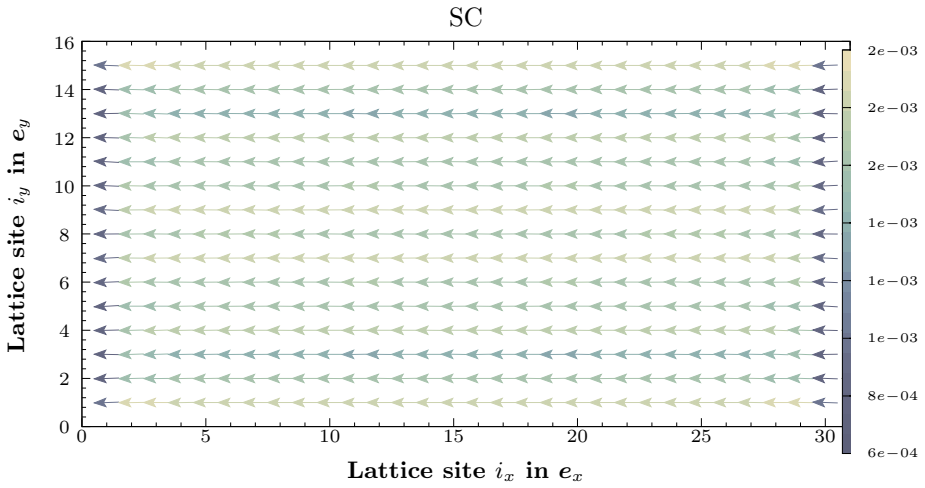

Figure 15: Benchmark on SC30 with fixed flat phase with $\mu = 0.75$. 0.5236 rad

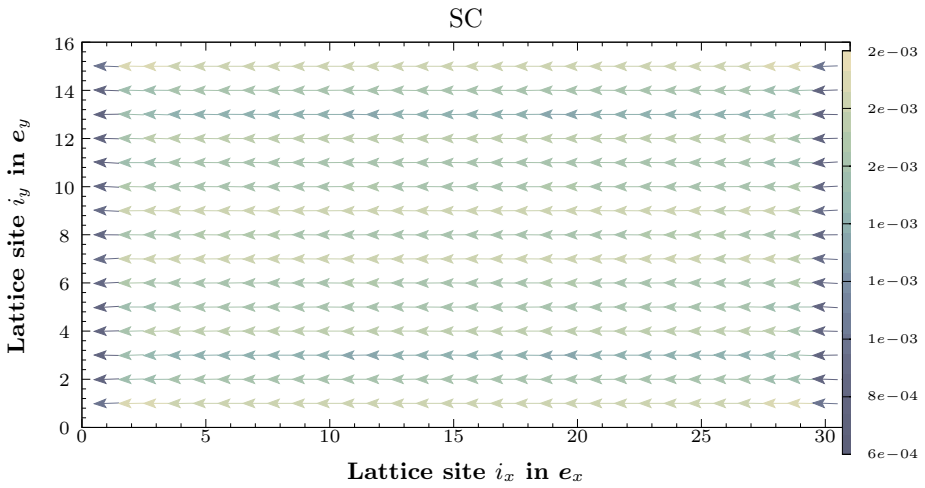

Figure 16: Benchmark on SC30 with fixed flat phase with $\mu = 0.75$. 2.618 rad *New.*.

$\mu = 2.75$ ..

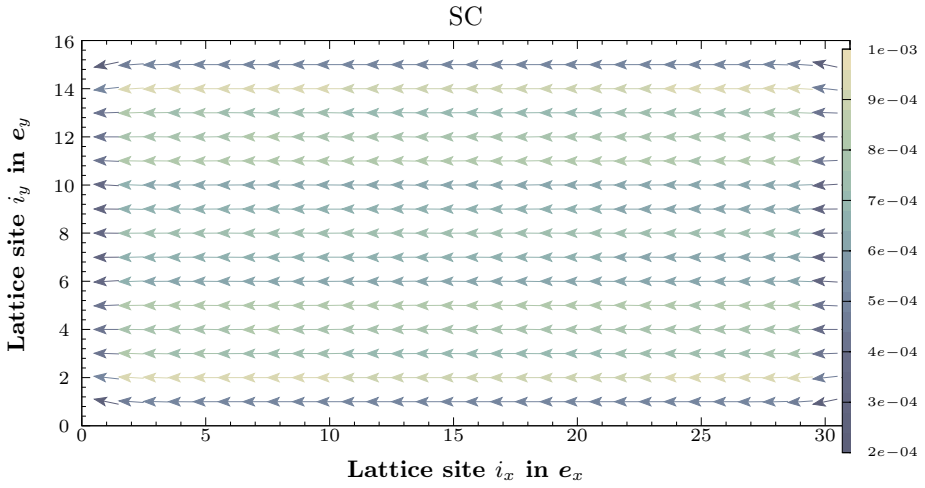

Figure 17: Benchmark on SC30 with fixed flat phase with $\mu = 2.75$. 1.0472 rad

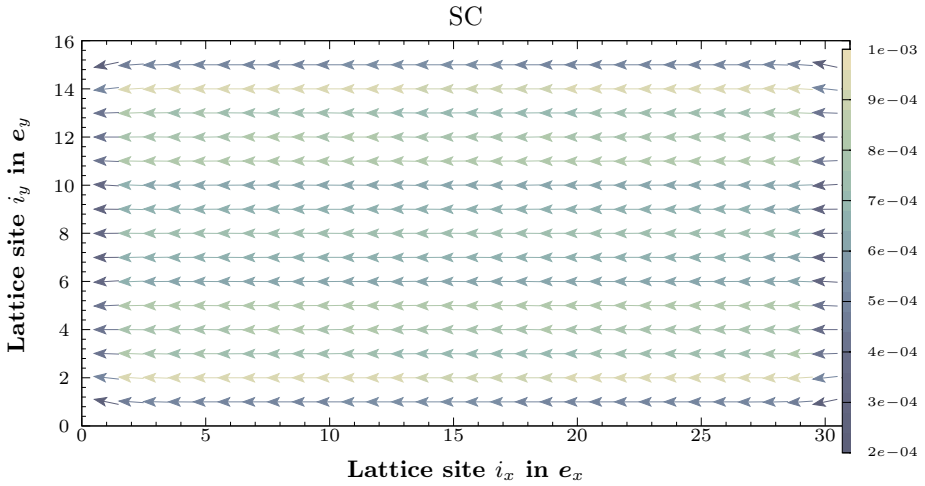

Figure 18: Benchmark on SC30 with fixed flat phase with $\mu = 2.75$. -1.0472 rad

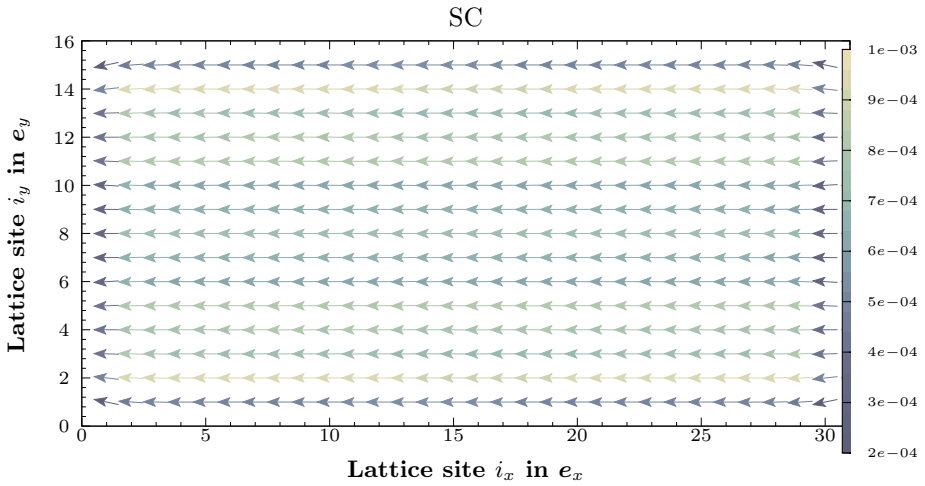

Figure 19: Benchmark on SC30 with fixed flat phase with $\mu = 2.75$. 0.5236 rad

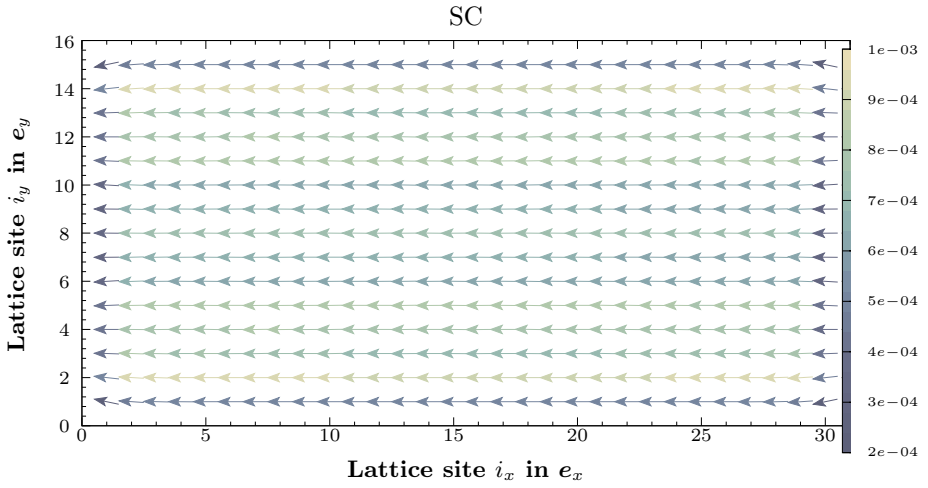

Figure 20: Benchmark on SC30 with fixed flat phase with $\mu = 2.75$. 2.618 rad

The more the φ, the stronger the slope of the line. Further we have to investigate wich μ gives a better continuity. This means the line is the more linear possible. We exepct to be a $\mu = 2.75$

1.2.3 Current Continuity

$\mu = 0.75$ ..

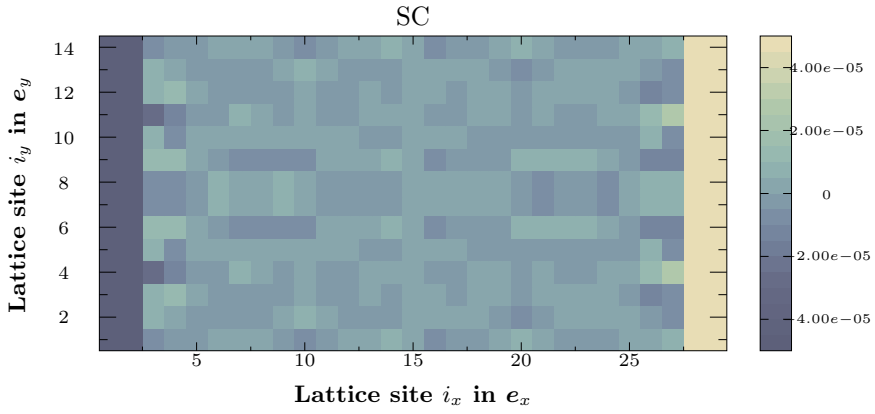

Figure 21: Benchmark on SC30 with phase gradien of 117∘, $\mu = 0.75$. -1.0472 rad

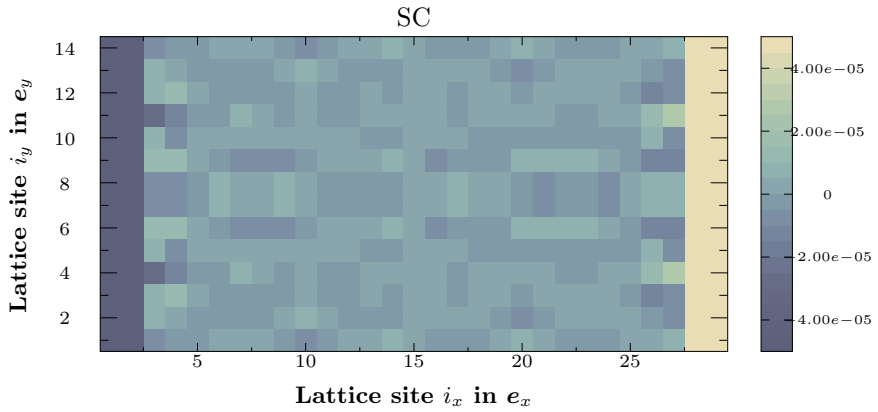

Figure 22: Benchmark on SC30 with phase gradien of 117∘, $\mu = 0.75$. 1.0472 rad *New.*.

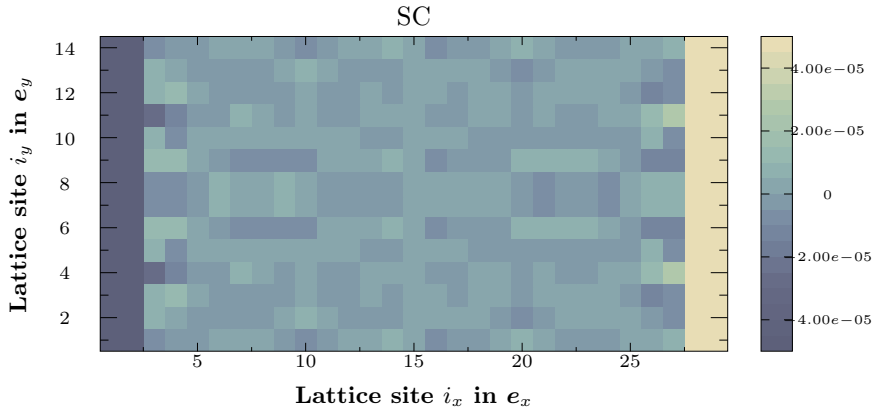

Figure 23: Benchmark on SC30 with phase gradien of 117∘, $\mu = 0.75$. 0.5236 rad

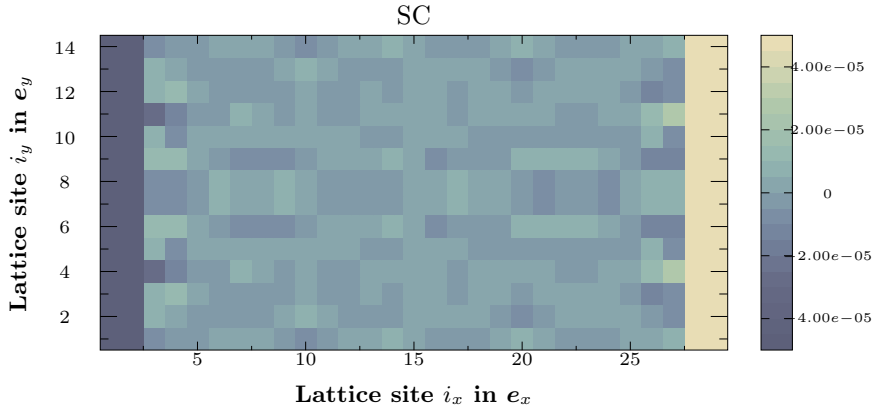

Figure 24: Benchmark on SC30 with phase gradient of 117∘, $\mu = 0.75$. 2.618 rad *New.*.

$\mu = 2.75$ ..

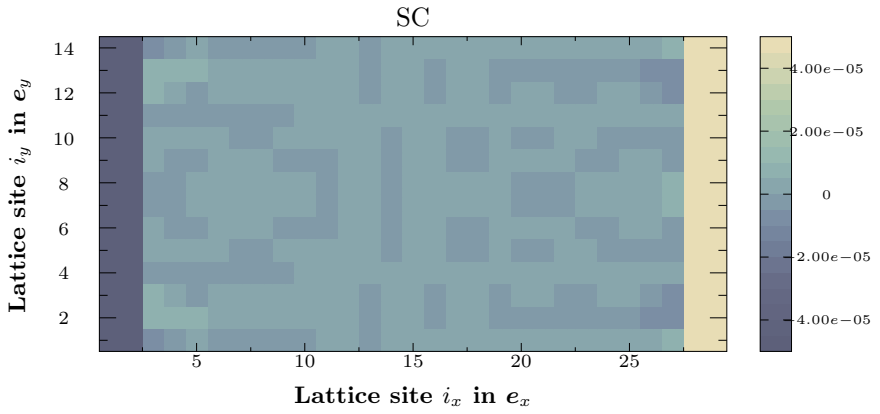

Figure 25: Benchmark on SC30 with phase gradient of 117∘, $\mu = 2.75$. -1.0472 rad

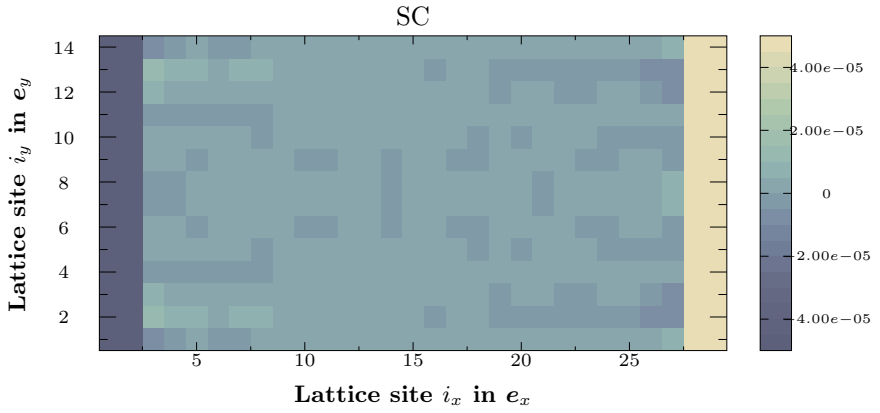

Figure 26: Benchmark on SC30 with phase gradient of 117∘, $\mu = 2.75$. 1.0472 rad

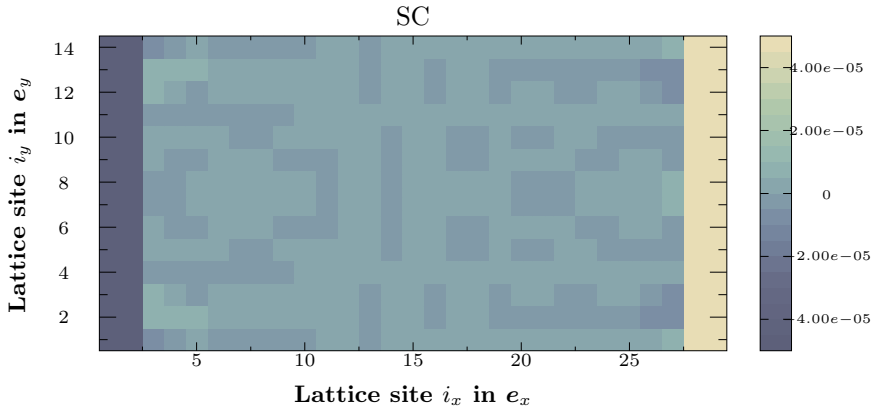

Figure 27: Benchmark on SC30 with phase gradient of 117∘, $\mu = 2.75$. 0.5236 rad

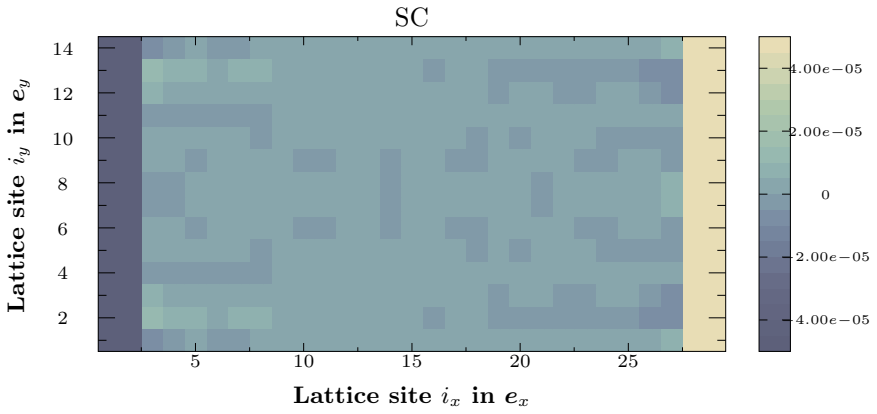

Figure 28: Benchmark on SC30 with phase gradient of 117∘, $\mu = 2.75$. 2.618 rad

The current continuity is better for $\mu = 2.75$, we can try to visualise it from the side. We want strong currents to make ot more visible so we are going to use $\varphi = 117^{\text{deg}}$.

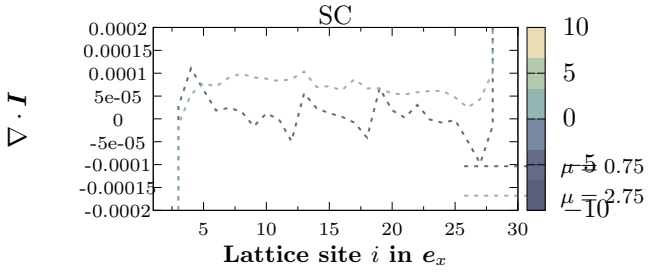

Figure 29: Meanline of both continuity with phase gradient of 117∘, $\mu = 2.75$. $\pi/3$ rad at the start.

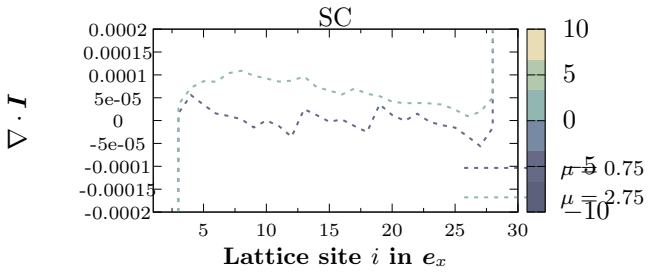

Figure 30: Meanline of both continuity with phase gradient of 50∘, $\mu = 2.75$. $\pi/3$ rad at the start.

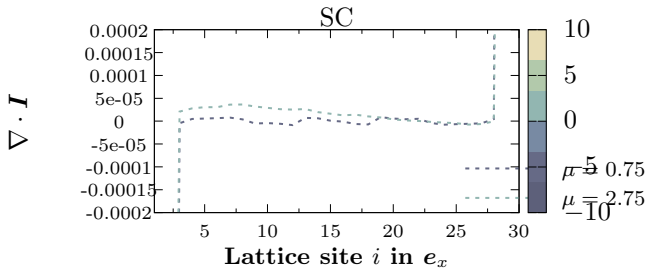

Figure 31: Meanline of both continuity with phase gradient of 10∘, $\mu = 2.75$. $\pi/3$ rad at the start.