Schatztruhe

May 1, 2024

```
[1]: using Plots
     using LaTeXStrings
```

0.1 Daten

```
[2]: data = [
         28902420 42807132 54674840 3749904 51962382 112403934 1377301725 110093368␣
     ↪80566200 209370708;
         49228240 59110236 107440960 57720624 74082816 119407374 530331300 623772688␣
     ↪175616760 397283640;
         196382860 78652872 115901280 88610496 89082036 132993792 440117550␣
     ↪187636064 777325560 676527652;
         247289560 1005906267 494417440 306448272 438427656 512693343 1571529600␣
     ↪499219336 749629320 9600109738;
         38510304 83705832 417861840 86389056 100199592 166748328 400354650␣
     ↪117798912 131800680 611808936;
         29062020 51095187 136296160 286187304 110718504 149376474 510389100␣
     ↪117629512 121904640 421637866;
         22192190 35772138 77183480 86599968 340273638 153127404 424168650 139119904␣
     ↪112930620 361791744;
         23223510 35577693 70379760 63872952 134107848 612942219 566327700 150586128␣
     ↪173957520 436524526;
         111474900 151263855 284387400 236630160 401867730 981465660 9210094875␣
     ↪816852960 765012600 2731931640;
         20056400 33387120 55598400 43967040 68459040 135237960 678132000 610850240␣
     ↪190819200 552445920
     ];
```

0.1.1 Matrix als LaTeX-Tabelle

```
[3]: for x in 1:10
         print(string(" & \$", x, "\$"))
     end
     println(" \\\\")

     for y in 1:10
         print(string("\$", y, "\$ "))
```

```julia
    for x in 0:9
        pos = 10*x + y
        num = data[pos] / 1e6
        num = Int(round(num))

        print(string(" & \$", num, "\$"))
    end
    println(" \\\\")
end
```

```
 & $1$ & $2$ & $3$ & $4$ & $5$ & $6$ & $7$ & $8$ & $9$ & $10$ \\
$1$  & $29$ & $43$ & $55$ & $4$ & $52$ & $112$ & $1377$ & $110$ & $81$ & $209$
\\
$2$  & $49$ & $59$ & $107$ & $58$ & $74$ & $119$ & $530$ & $624$ & $176$ & $397$
\\
$3$  & $196$ & $79$ & $116$ & $89$ & $89$ & $133$ & $440$ & $188$ & $777$ &
$677$ \\
$4$  & $247$ & $1006$ & $494$ & $306$ & $438$ & $513$ & $1572$ & $499$ & $750$ &
$9600$ \\
$5$  & $39$ & $84$ & $418$ & $86$ & $100$ & $167$ & $400$ & $118$ & $132$ &
$612$ \\
$6$  & $29$ & $51$ & $136$ & $286$ & $111$ & $149$ & $510$ & $118$ & $122$ &
$422$ \\
$7$  & $22$ & $36$ & $77$ & $87$ & $340$ & $153$ & $424$ & $139$ & $113$ & $362$
\\
$8$  & $23$ & $36$ & $70$ & $64$ & $134$ & $613$ & $566$ & $151$ & $174$ & $437$
\\
$9$  & $111$ & $151$ & $284$ & $237$ & $402$ & $981$ & $9210$ & $817$ & $765$ &
$2732$ \\
$10$  & $20$ & $33$ & $56$ & $44$ & $68$ & $135$ & $678$ & $611$ & $191$ & $552$
\\
```
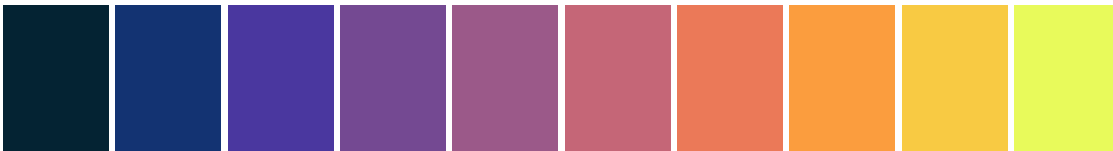
[ ]:

0.2 Heatmap

[4]:
```julia
thermal_splitted = palette(:thermal, 10)
thermal_splitted
```
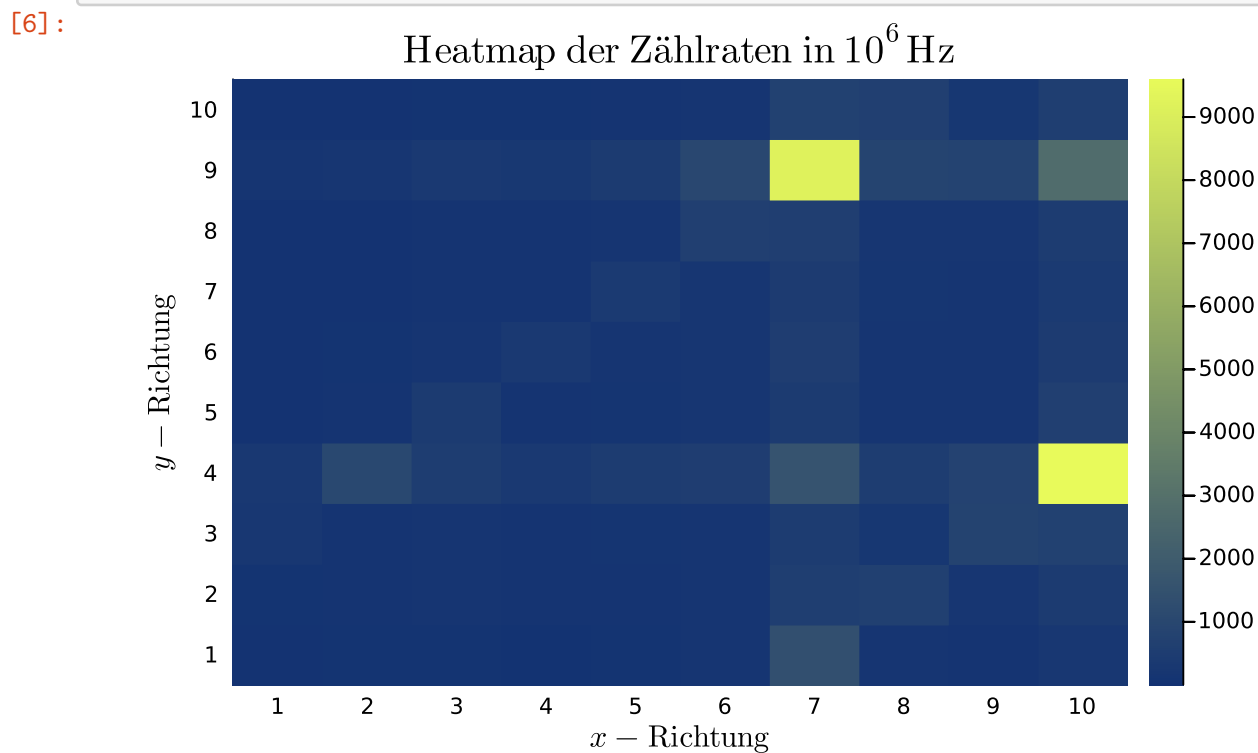
[4]:

```
[5]: colorscale = cgrad([palette(:thermal, 10)[2], palette(:thermal, 10)[10]],␣
     ↪scale=:log)
```

[5]:


```
[6]: heatmap(
         data/1e6,
         c=colorscale
     )
     title!(L"\mathrm{Heatmap\ der\ Zählraten\ in\ 10^6\,Hz}")
     xlabel!(L"x-\mathrm{Richtung}")
     ylabel!(L"y-\mathrm{Richtung}")
     xticks!(1:10)
     yticks!(1:10)
```

[6]:


```
[7]: savefig("../../media/B3.4/heatmap.svg")
     savefig("../../media/B3.4/heatmap.png");
```

0.3 Surface Plot

```
[8]: surface(data, c=colorscale, legend=:none)
     title!(L"\mathrm{Oberflächenplot\ der\ Zählraten\ in\ 10^6\,Hz}")
     xlabel!(L"x-\mathrm{Richtung}")
     ylabel!(L"y-\mathrm{Richtung}")
     xticks!(1:10)
     yticks!(1:10)
```

[8]:

Oberflächenplot der Zählraten in 10^6 Hz