

# Schatztruhe

May 21, 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 $\text{\LaTeX}$ -Tabelle

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

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

```

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

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

```

```

& $1$ & $2$ & $3$ & $4$ & $5$ & $6$ & $7$ & $8$ & $9$ & $10$ \\  

$1$ & $29$ & $43$ & $55$ & $4$ & $52$ & $112$ & $1377$ & $110$ & $81$ & $209$  

\\  

$2$ & $49$ & $59$ & $107$ & $58$ & $74$ & $119$ & $530$ & $624$ & $176$ & $397$  

\\  

$3$ & $196$ & $79$ & $116$ & $89$ & $89$ & $133$ & $440$ & $188$ & $777$ & &  

$677$ \\  

$4$ & $247$ & $1006$ & $494$ & $306$ & $438$ & $513$ & $1572$ & $499$ & $750$ & &  

$9600$ \\  

$5$ & $39$ & $84$ & $418$ & $86$ & $100$ & $167$ & $400$ & $118$ & $132$ & &  

$612$ \\  

$6$ & $29$ & $51$ & $136$ & $286$ & $111$ & $149$ & $510$ & $118$ & $122$ & &  

$422$ \\  

$7$ & $22$ & $36$ & $77$ & $87$ & $340$ & $153$ & $424$ & $139$ & $113$ & $362$  

\\  

$8$ & $23$ & $36$ & $70$ & $64$ & $134$ & $613$ & $566$ & $151$ & $174$ & $437$  

\\  

$9$ & $111$ & $151$ & $284$ & $237$ & $402$ & $981$ & $9210$ & $817$ & $765$ & &  

$2732$ \\  

$10$ & $20$ & $33$ & $56$ & $44$ & $68$ & $135$ & $678$ & $611$ & $191$ & $552$  

\\

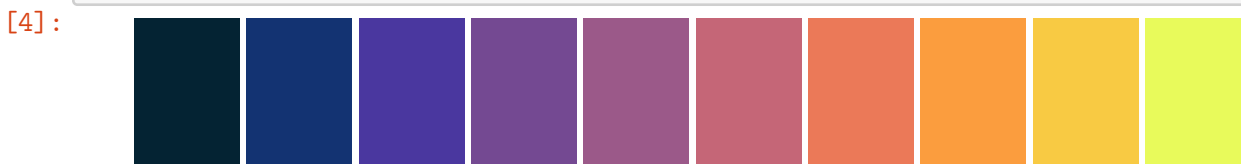
```

## 0.2 Heatmap

```

[4]: thermalSplitted = palette(:thermal, 10)
thermalSplitted

```



```

[5]: colorscale = cgrad([palette(:thermal, 10)[2], palette(:thermal, 10)[10]],  

    ↪ scale=:log)

```

[5]:



```
[6]: img = heatmap(  
      data/1e6,  
      c=colorscale,  
      size=(600, 600)  
    )  
    title!(L"\mathrm{Heatmap\ der\ Zählraten\ in\ 10^6\,min^{-3}}")  
    xlabel!(L"x-\mathrm{Richtung}")  
    ylabel!(L"y-\mathrm{Richtung}")  
    xticks!(1:10)  
    yticks!(1:10)
```

[6]:



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

### 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

