



Plotly 绘制数学函数图像

假设数学函数下:

$$peaks(x,y) = 3(1-x)^2e^{-x^2-(y+1)^2} - 10(\frac{x}{5} - x^3 - y^5)e^{-x^2-y^2} - \frac{1}{3}e^{-(x+1)^2-y^2}$$

需要绘制它在 $x \in [-6, 6], y \in [-6, 6]$ 的图像。

代码如下:

```
local print = require('package.print').print
local inja = require('package.inja')
local mol = libminoptlab

local peaks = function(xx)
    local x, y = xx[1], xx[2]
    return
        3 * (1 - x) ^ 2 * math.exp(-(x ^ 2) - (y + 1) ^ 2) - 10 * (x / 5 - x ^ 3 - y ^ 5) * math.exp(-x ^ 2 - y ^ 2) - 1 /
        3 * math.exp(-(x + 1) ^ 2 - y ^ 2)
end

local x = mol.linspace(-6, 6, 100)
local y = mol.linspace(-6, 6, 100)

local xyz = mol.matrix.meshgridXYZ(x, y, peaks)
local xdat, ydat, zdat = xyz[1]:view(), xyz[2]:view(), xyz[3]:view()

inja.render_to('plotly.txt',{xdat = xdat,ydat = ydat,zdat = zdat},'plotly.md')

mol.mdview('plotly.md')
```

plotly.js模板文件如下:

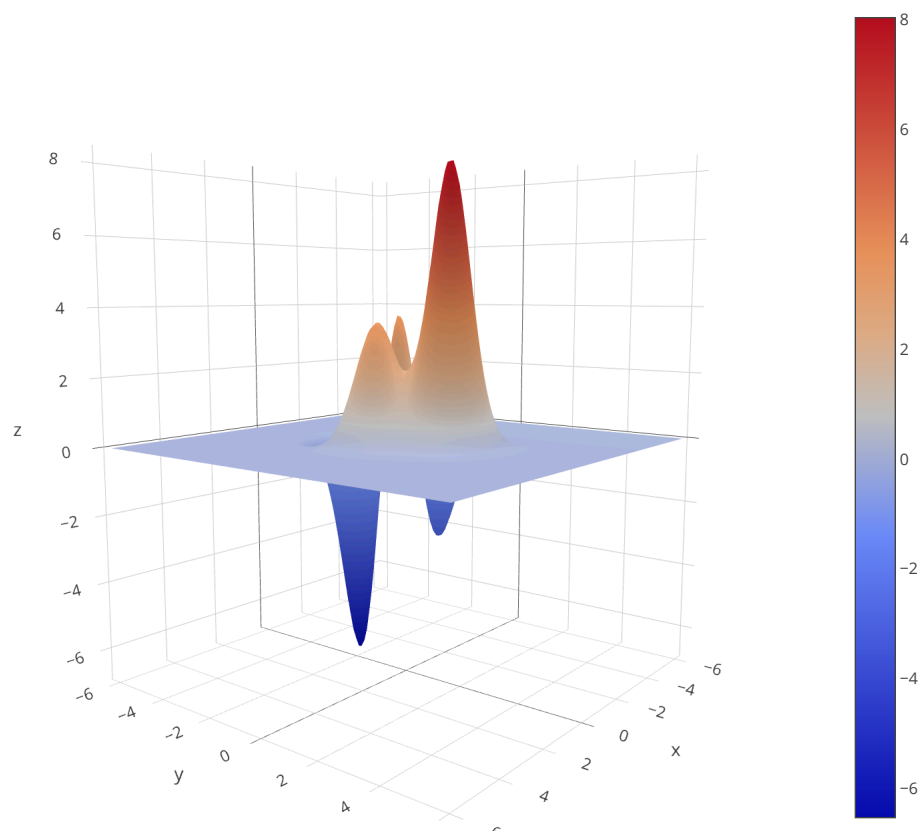
```
var demo = document.getElementById('demo')

var data = [{x:{< xdat >},y:{< ydat >},z:{< zdat >},type: 'surface' }]
var layout = {title: { text: "3d surface" } }

Plotly.newPlot(demo, data, layout);
```

绘制图像如下:

3d surface



长沙市先验真理数据科技有限公司 2023-2026

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