

# 看得见的算法

liuyubobobo

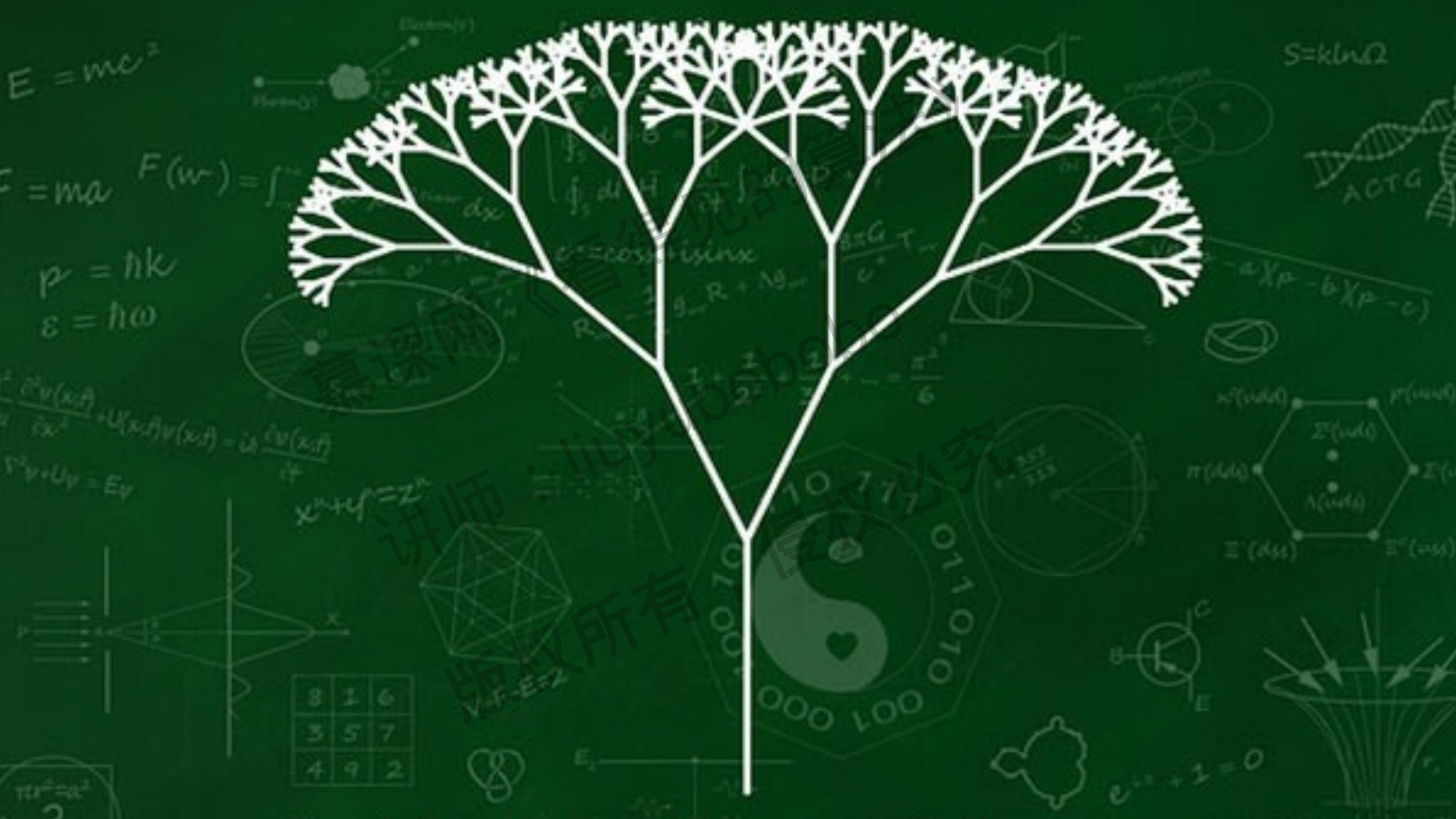
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# 分形图的绘制

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# 分形图

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# 分形图的意义

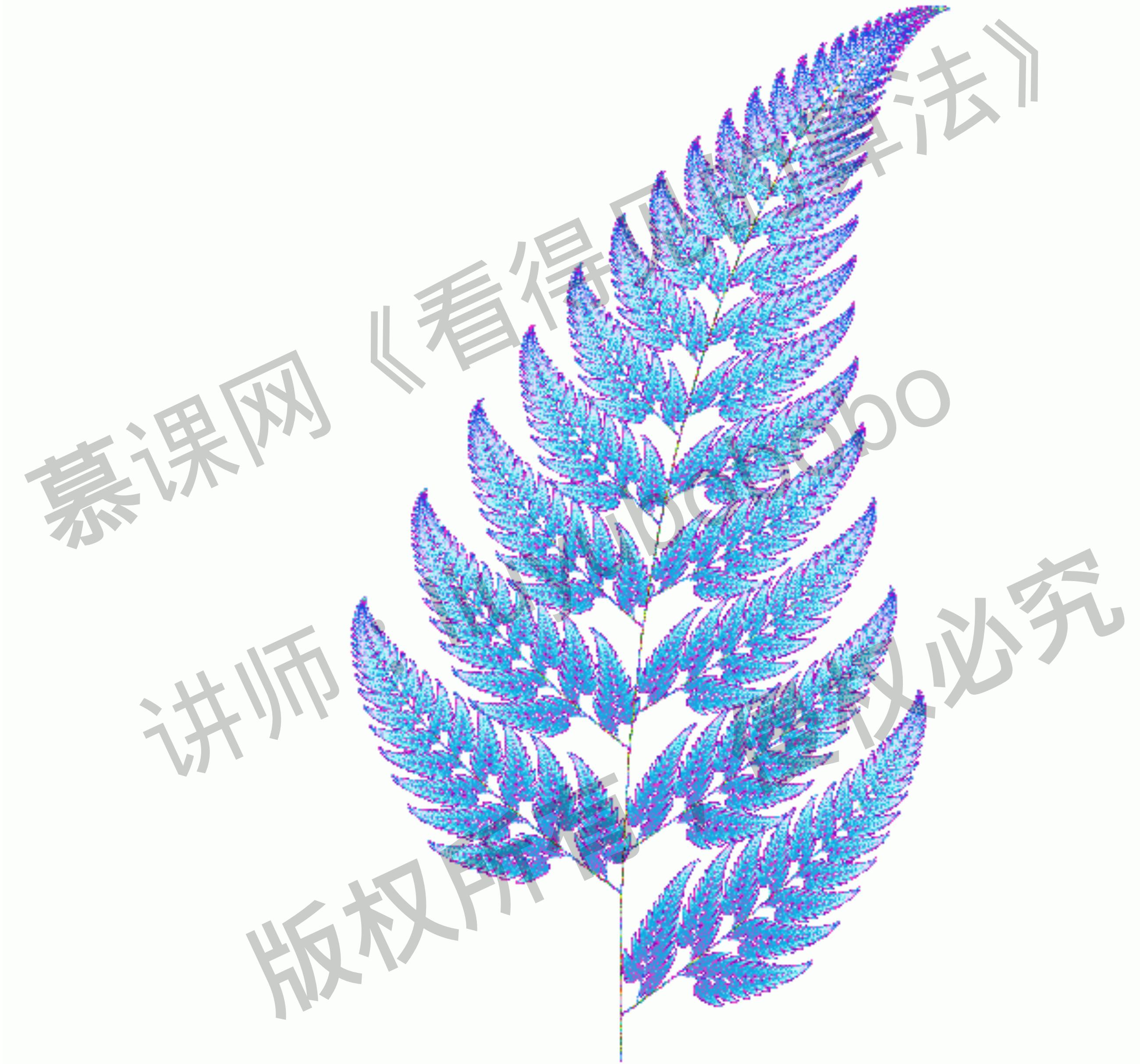
大自然中到处都是

欧氏几何学无法描述

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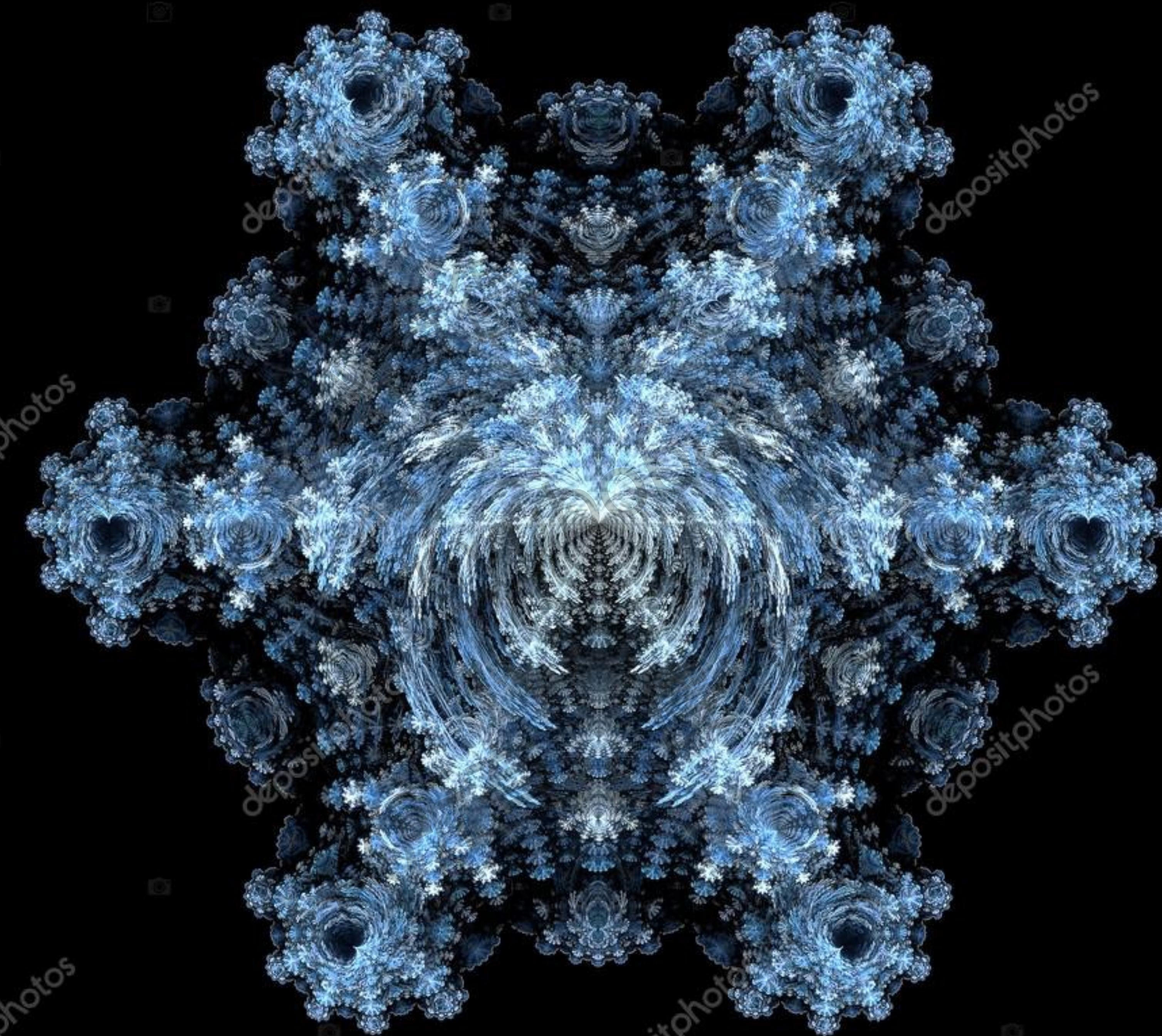
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# 分形算法







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100公里里的  
海岸线

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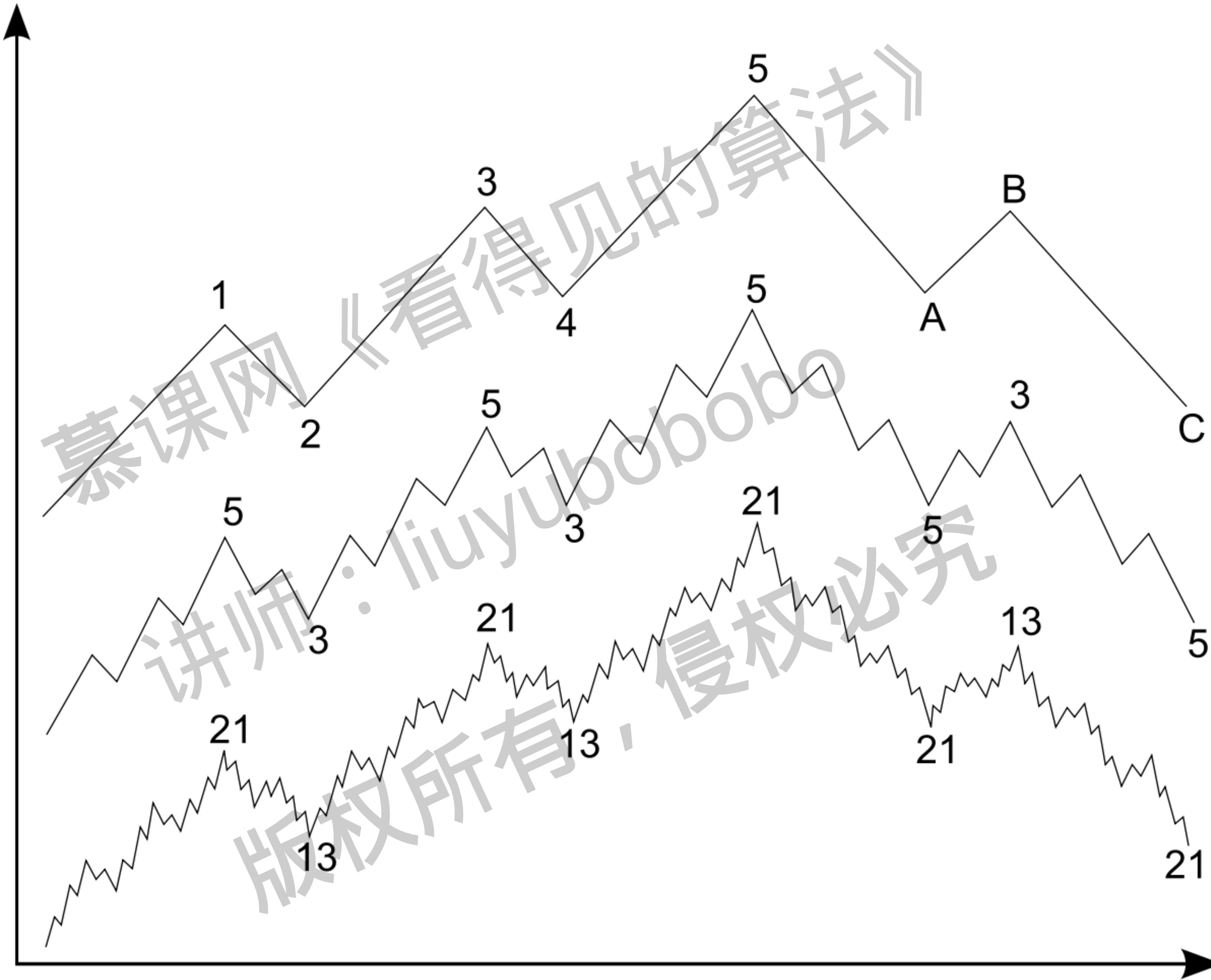
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# 放大的了的 10公里海岸线

看上去会十分相似

675910943568





# 分形图的意义

分形无处不在

运用递归去模拟

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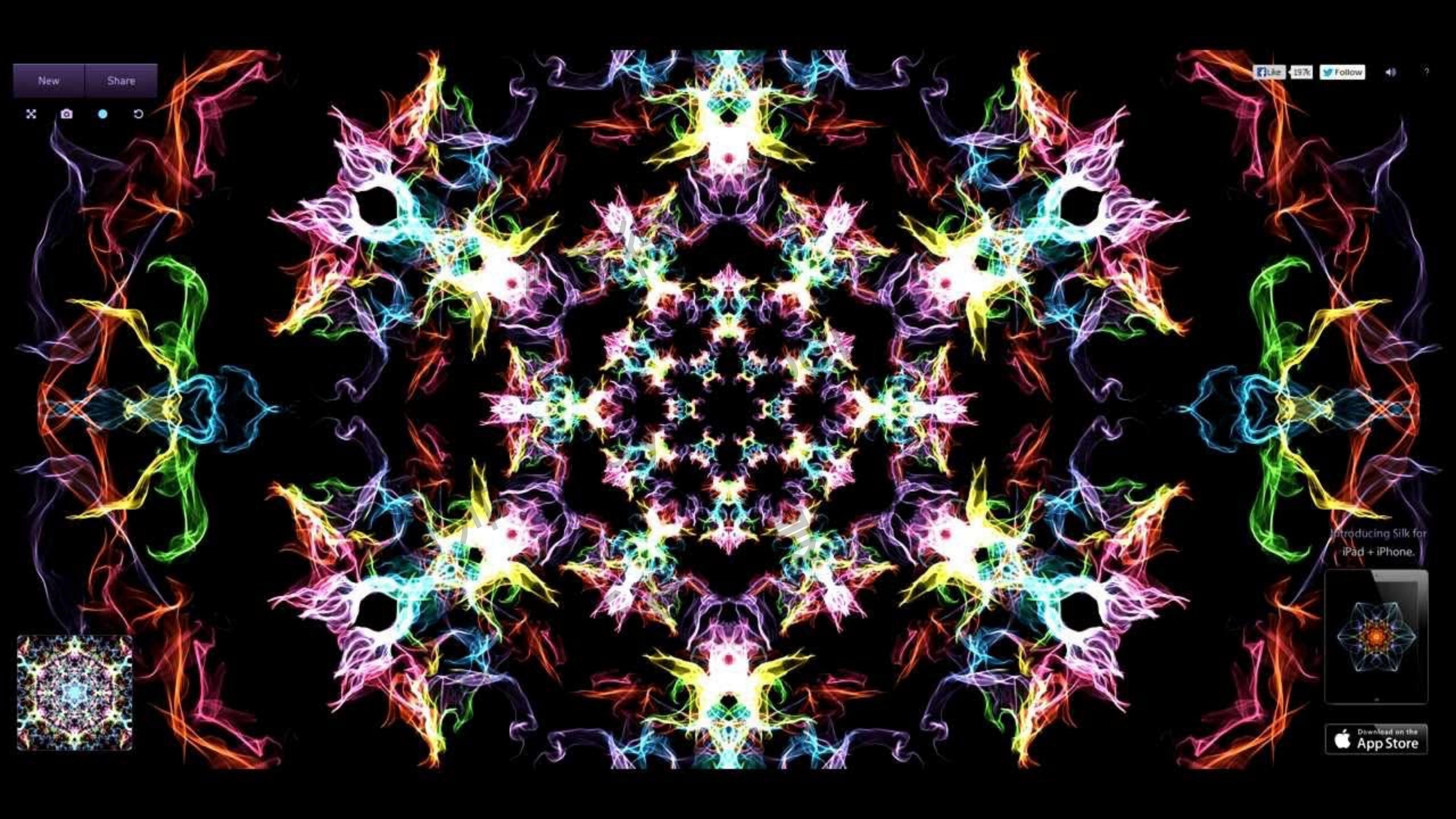
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# 生成艺术

设计师只要设定生成艺术算法公式，然后交给计算机处理就可以了，但这一算法的特征就是：最后生成的结果是设计师都无法预料，并且同一算法的不同时间段运算所产生的结果也是不同的，具有很强的随机性。

纽约大学的Philip Galanter解释：“艺术家应用计算机程序，或一系列自然语言规则，或一个机器，或其它发明物，产生出一个具有一定自控性的过程，该过程的直接或间接结果是一个完整的艺术品”。

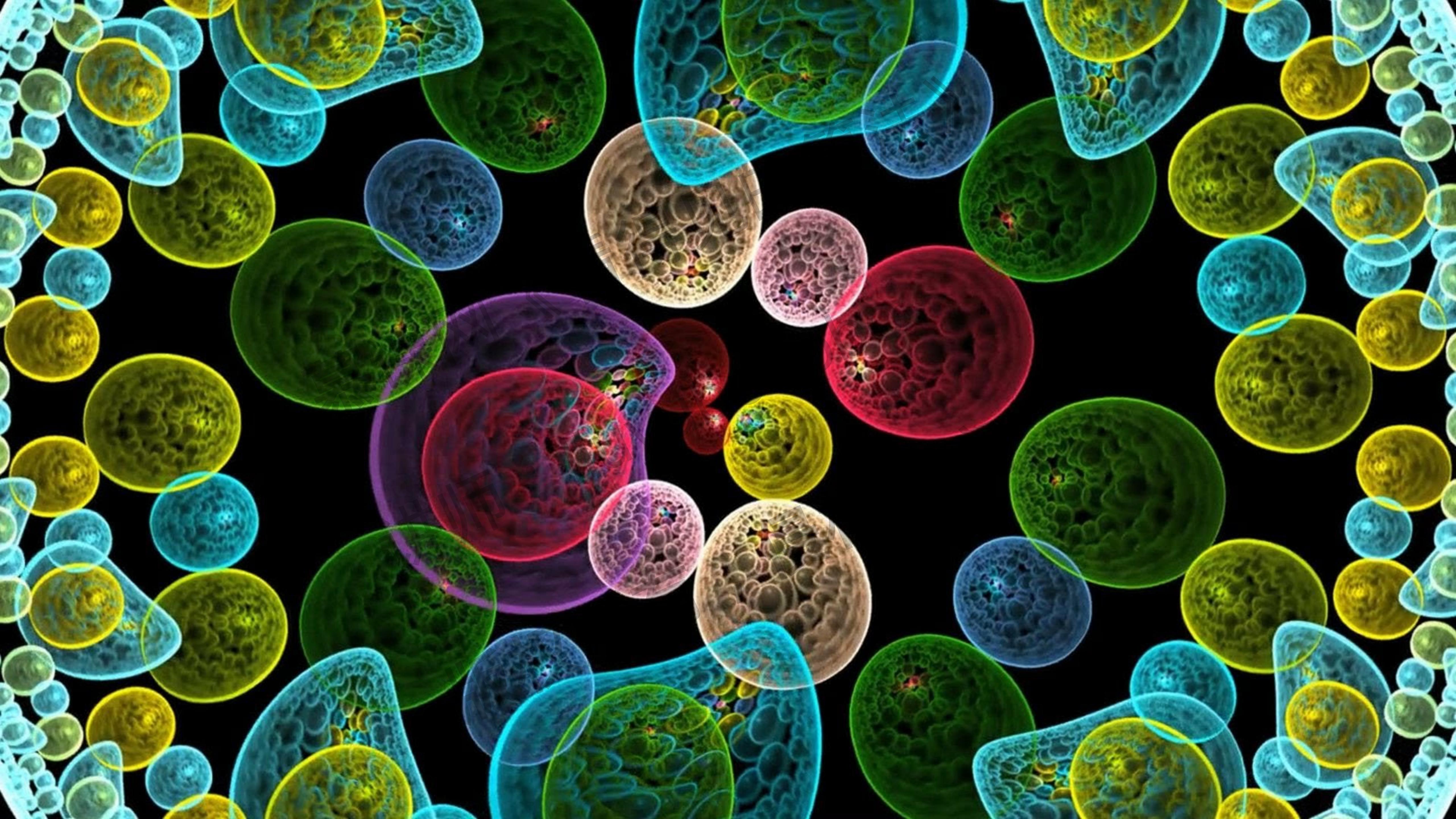


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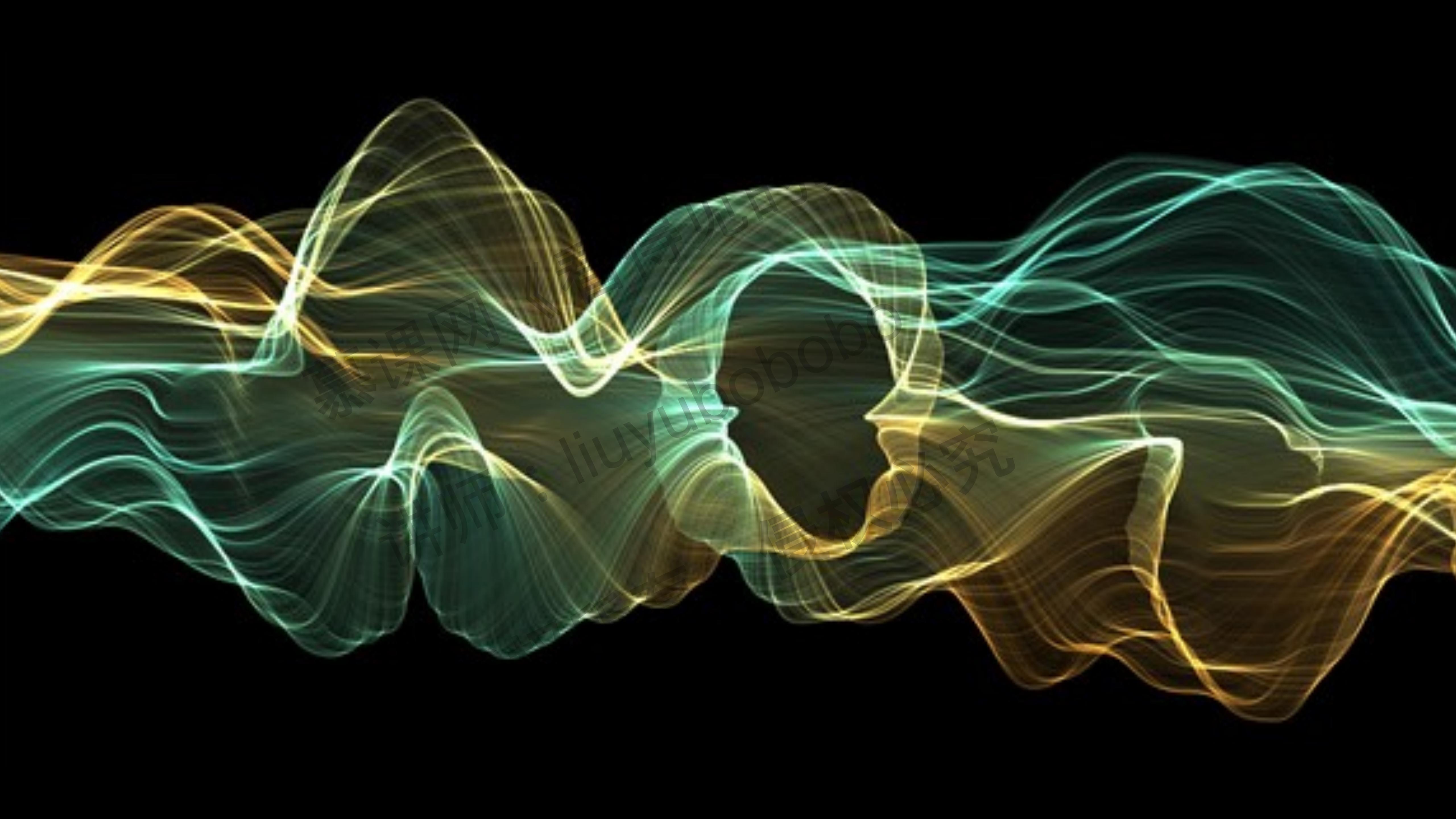
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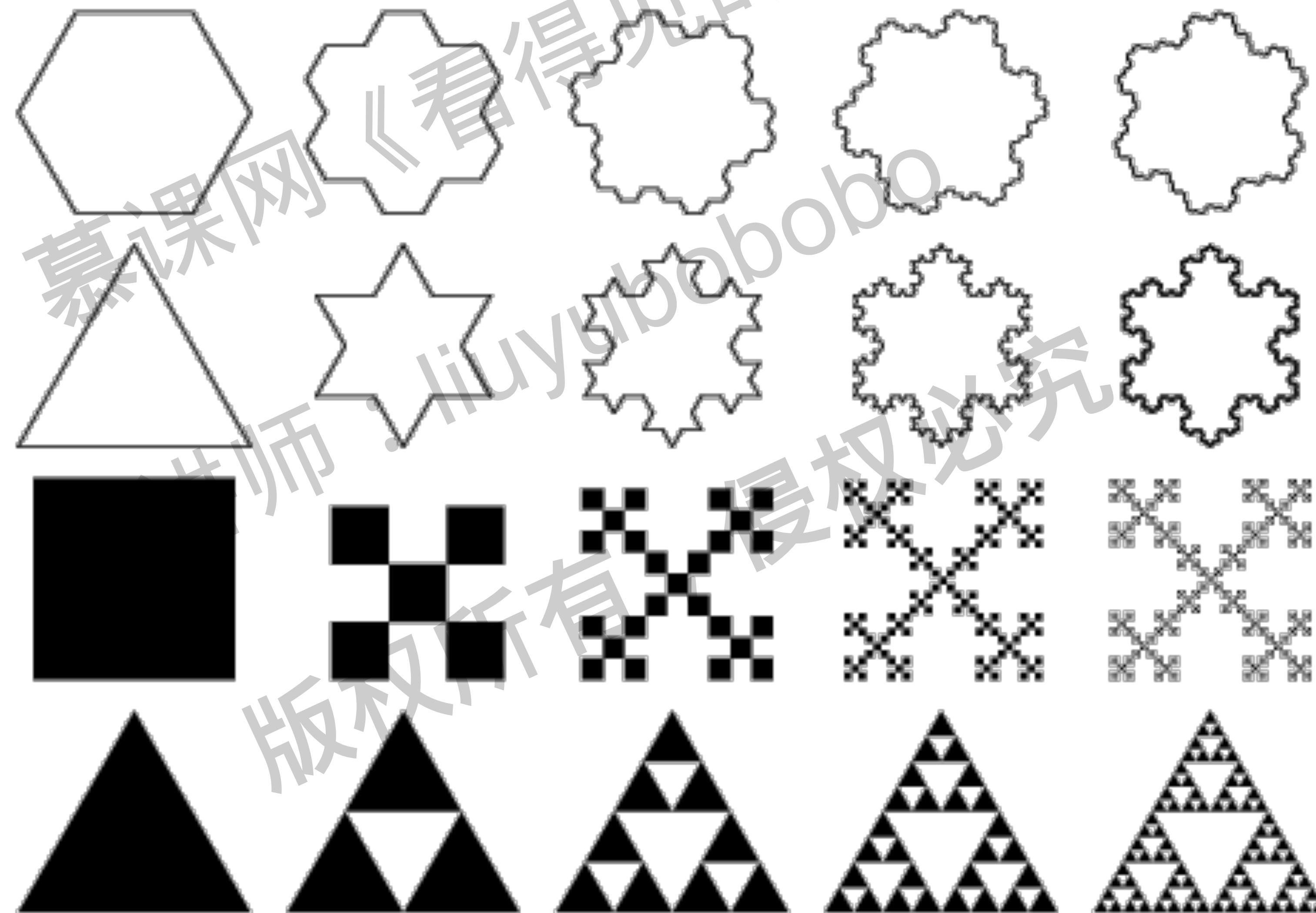






课件制作人: liuyubobobo  
课件研究人: liuyubobobo

# 分形基础



# 递归绘制基础

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# 递归绘制基础

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# 第一个分形图

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# 第一个分形图



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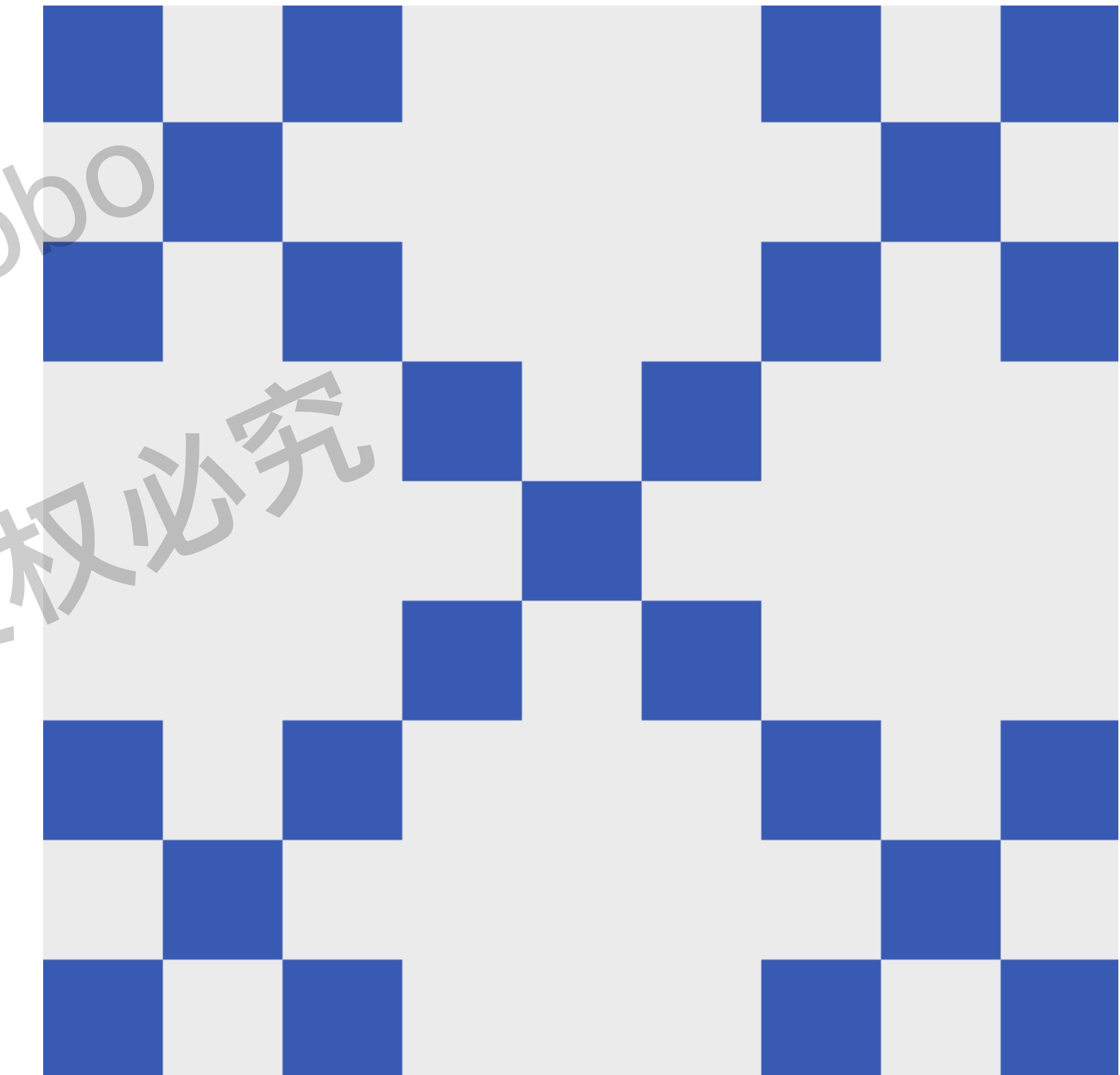
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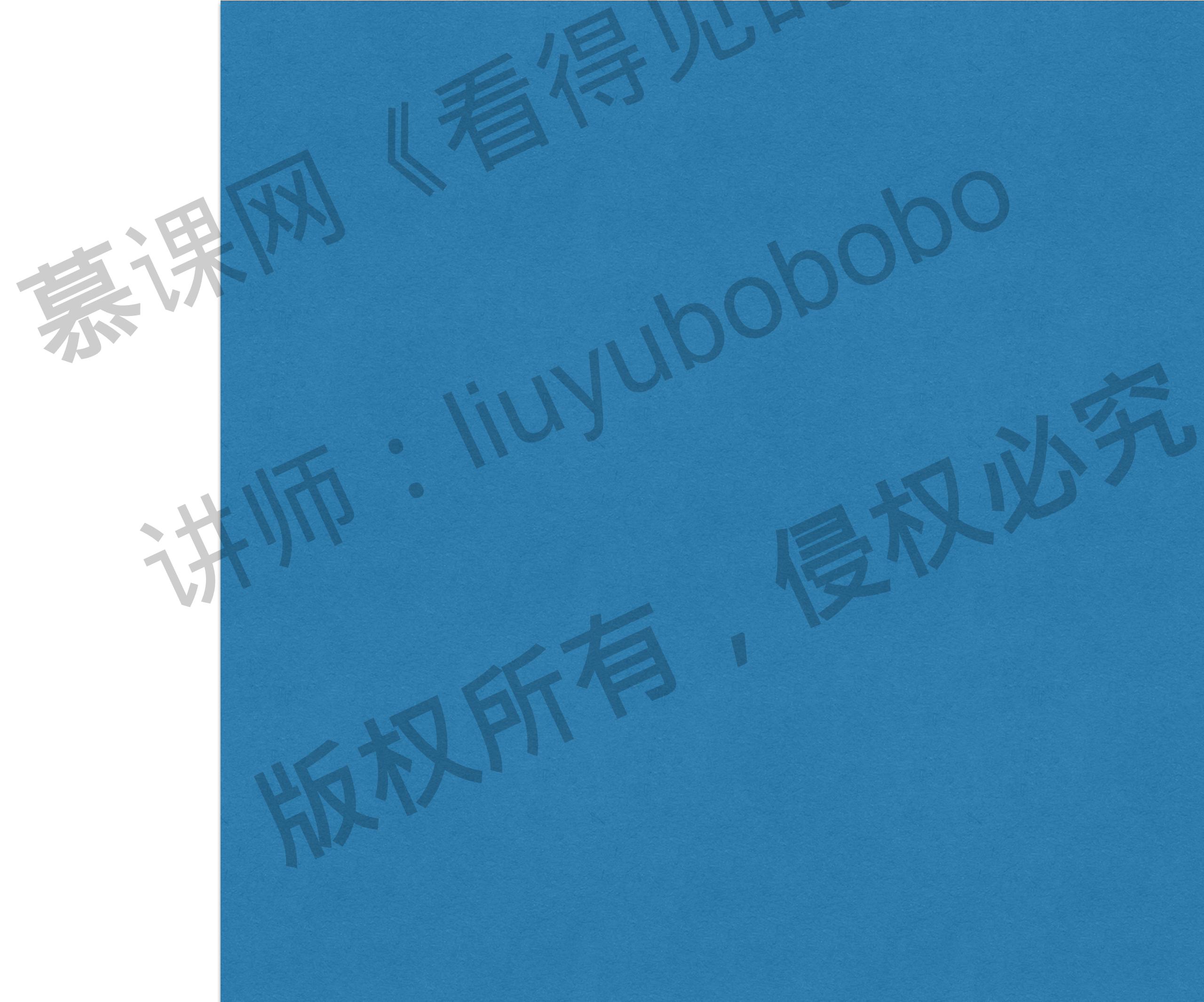
看得见的课件

# Vicsek Fractal

## 第一个分形图



# Vicsek Fractal

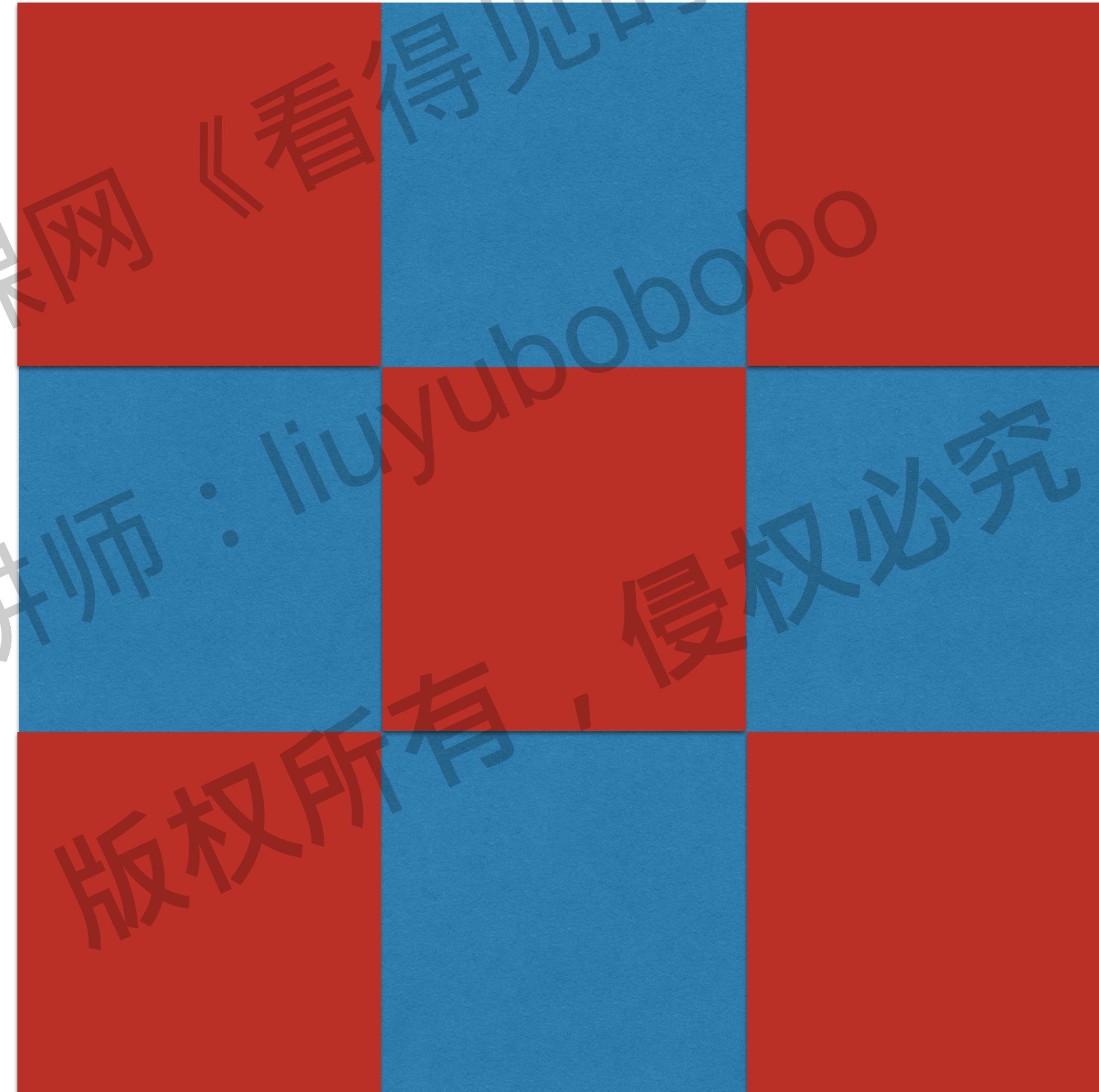


# Vicsek Fractal



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# Vicsek Fractal



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# Vicsek Fractal

演示：第一个分形图绘制

# 添加键盘响应

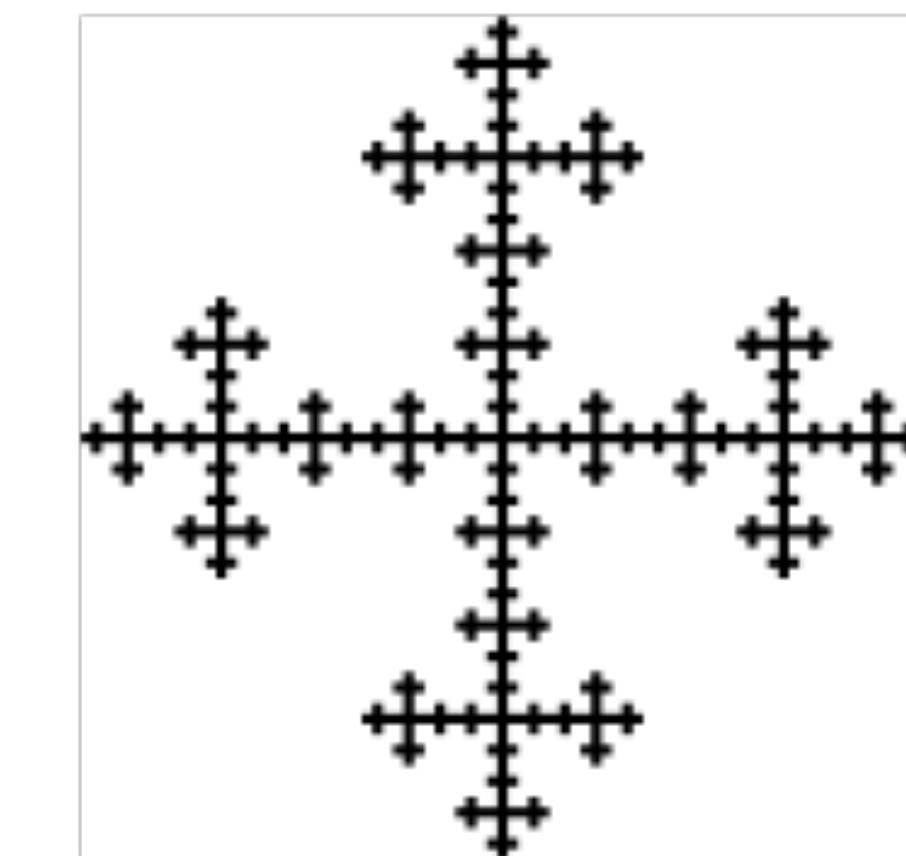
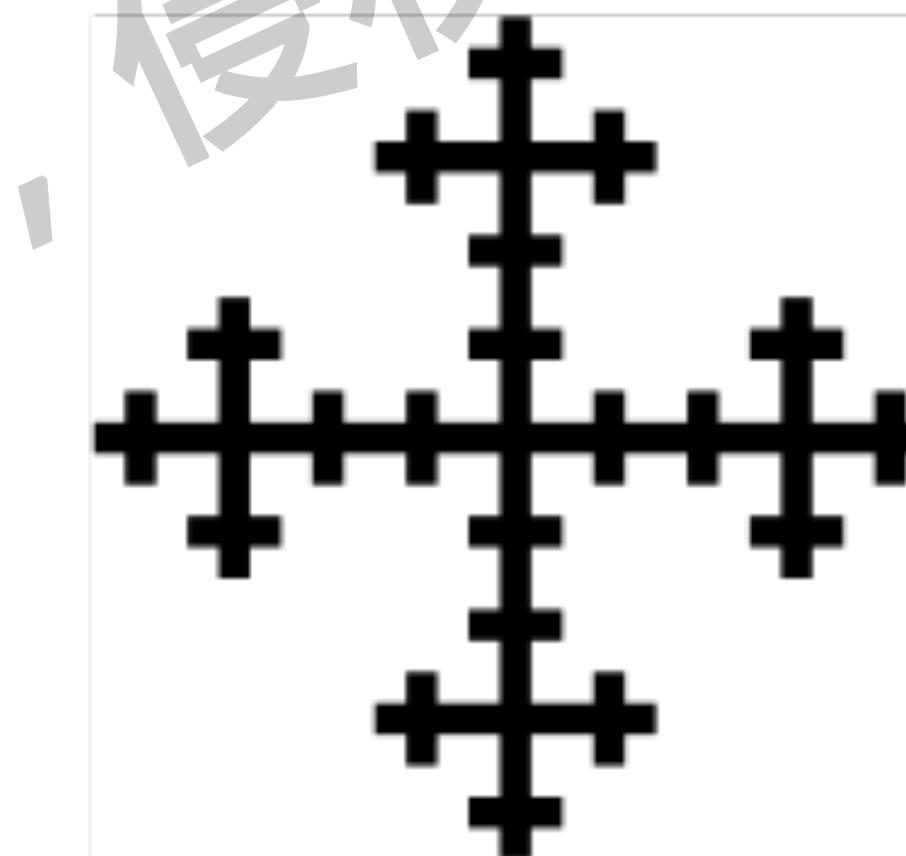
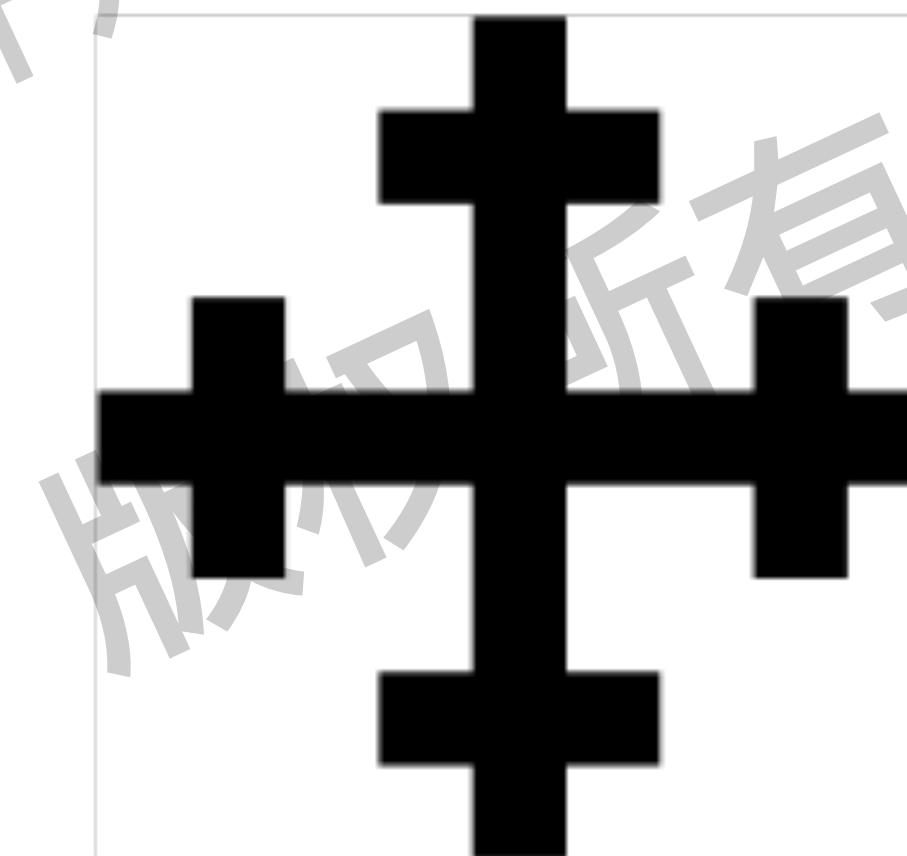
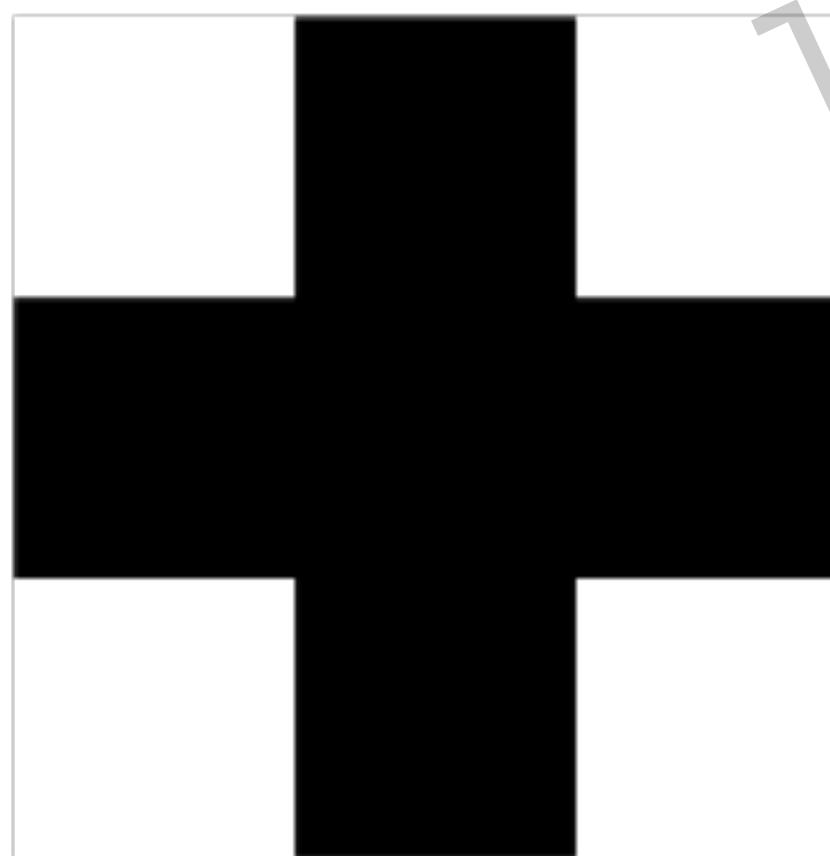
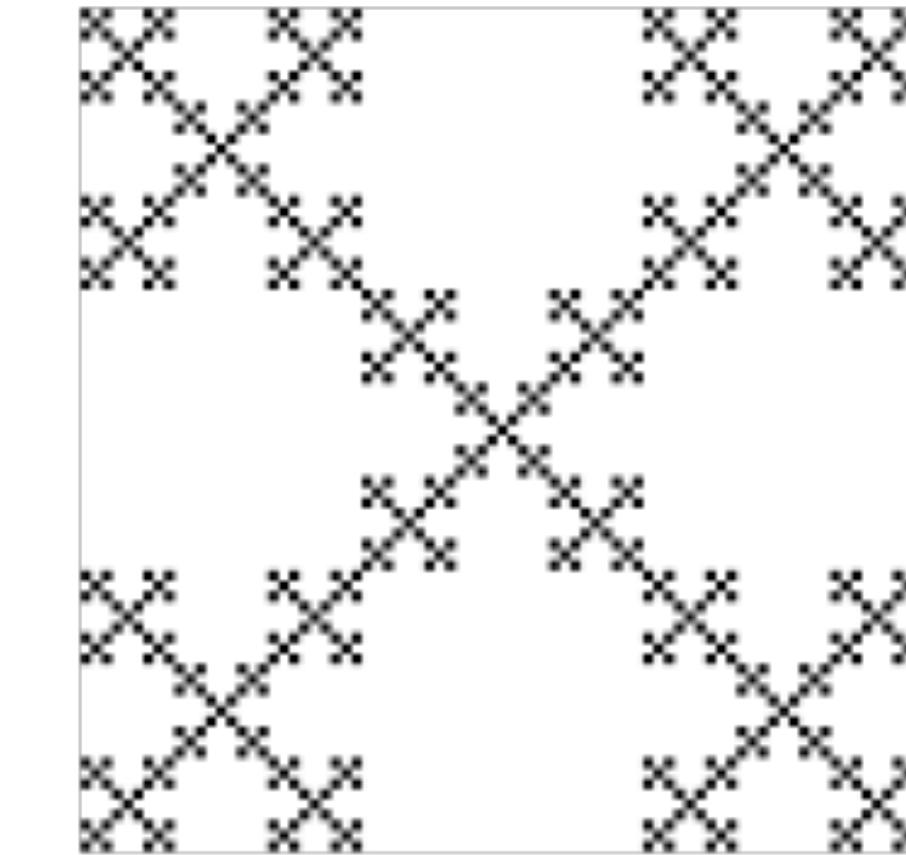
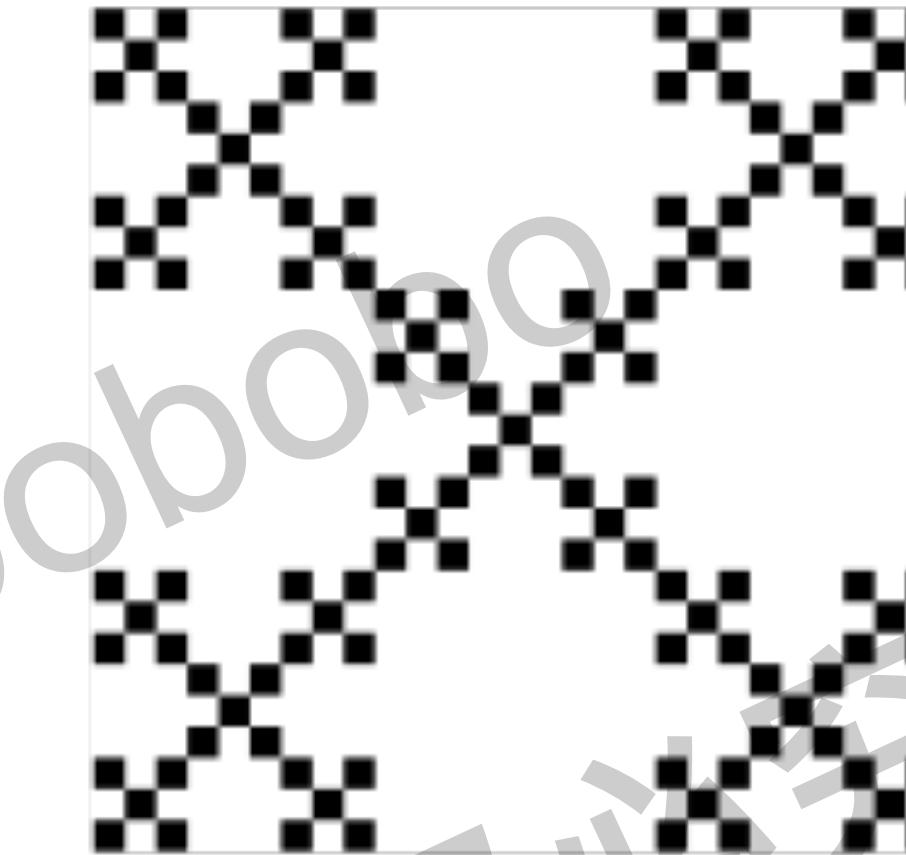
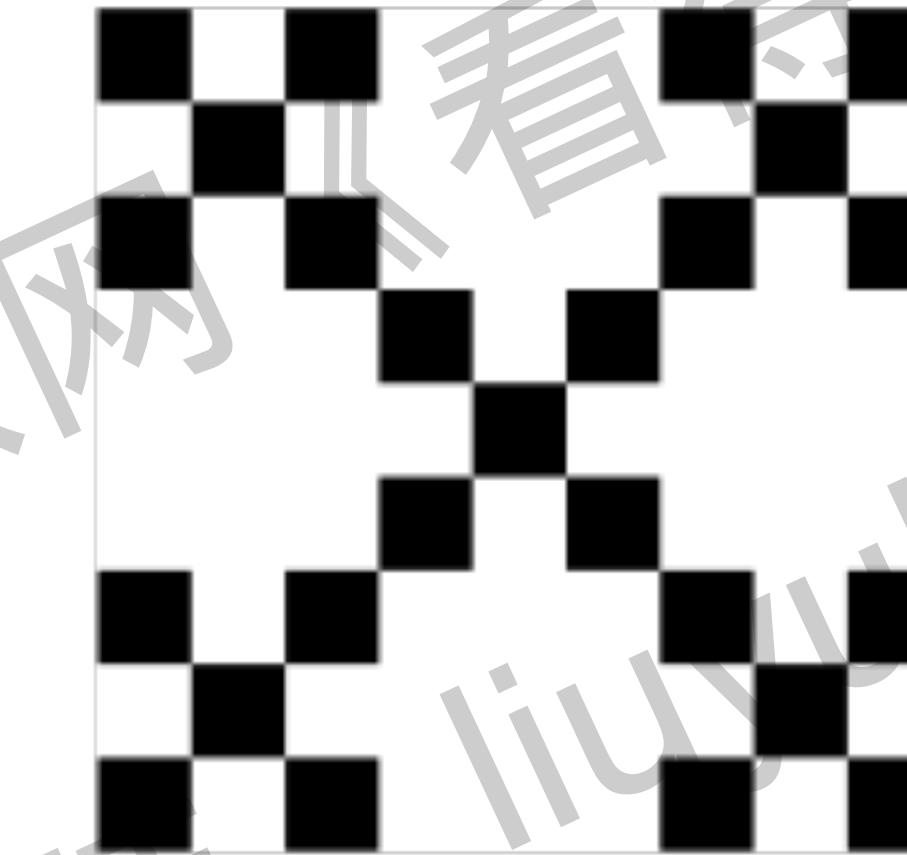
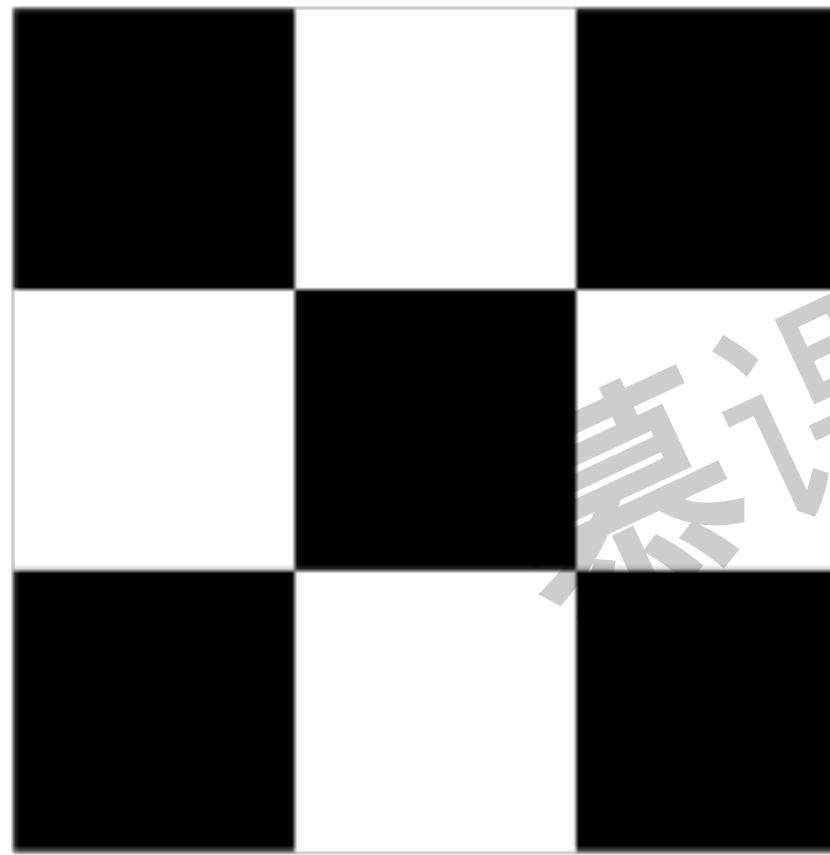
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# 添加键盘响应

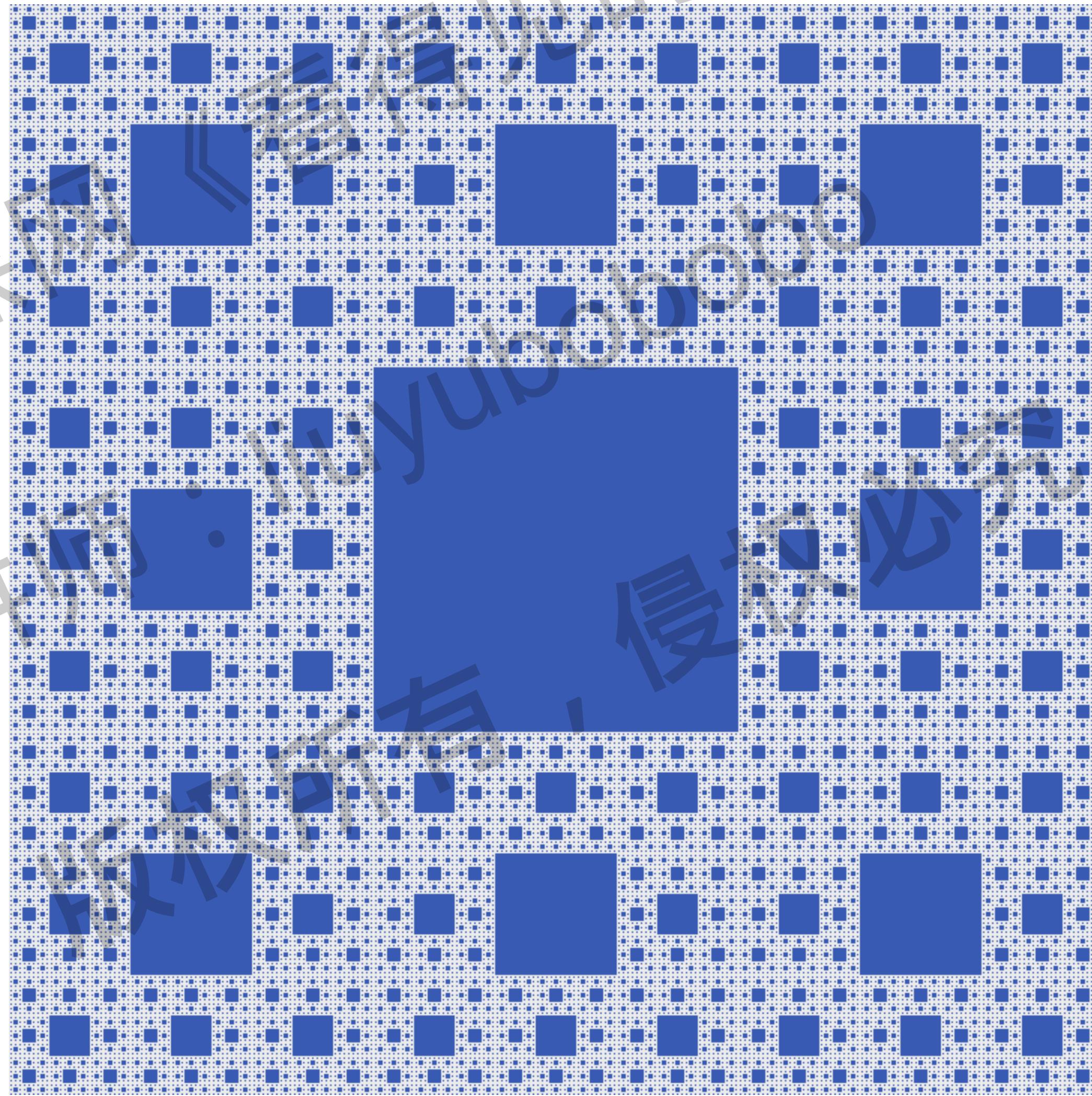
演示：添加键盘响应

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# Vicsek Fractal



# Sierpinski Carpet



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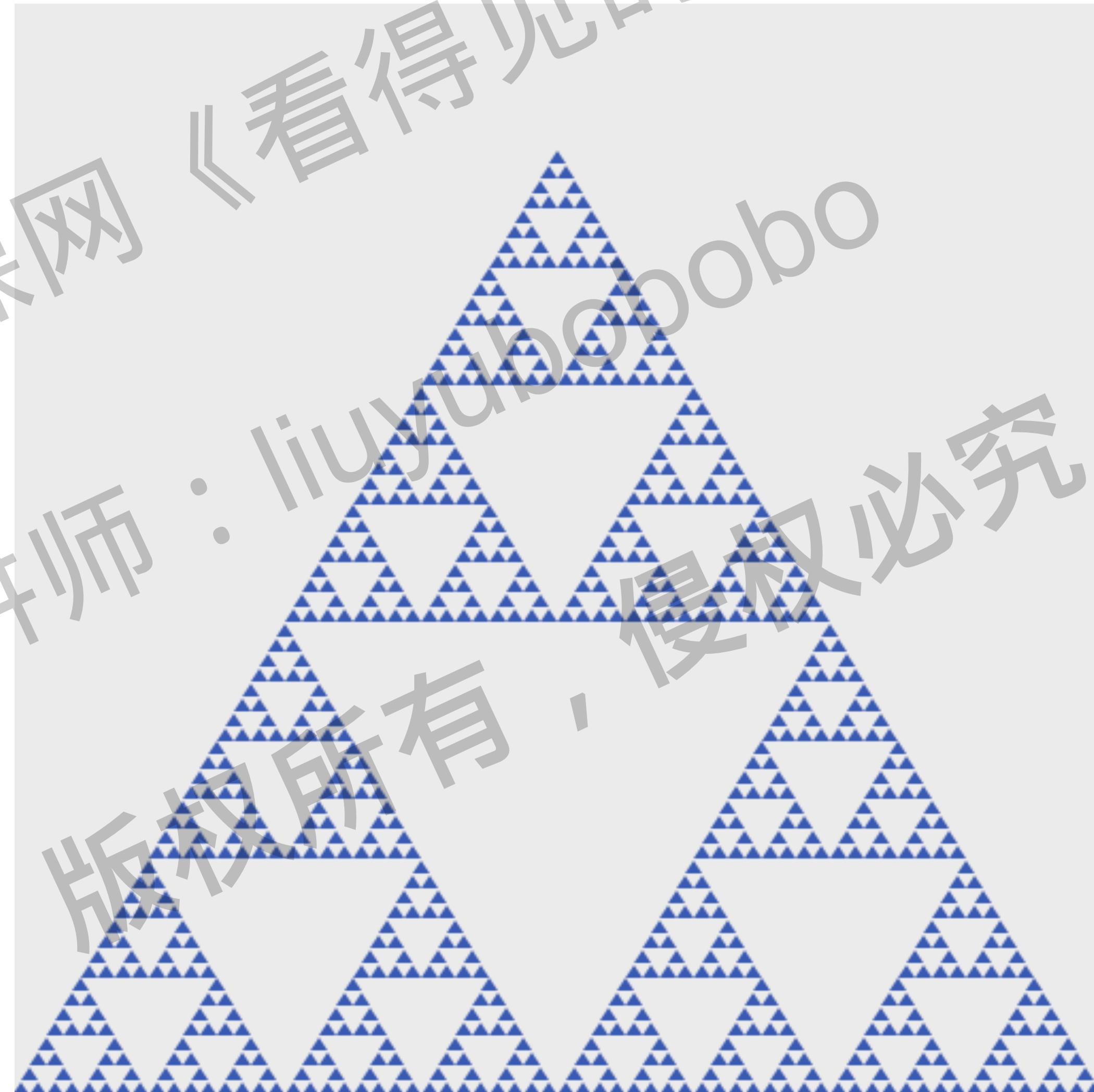
yud

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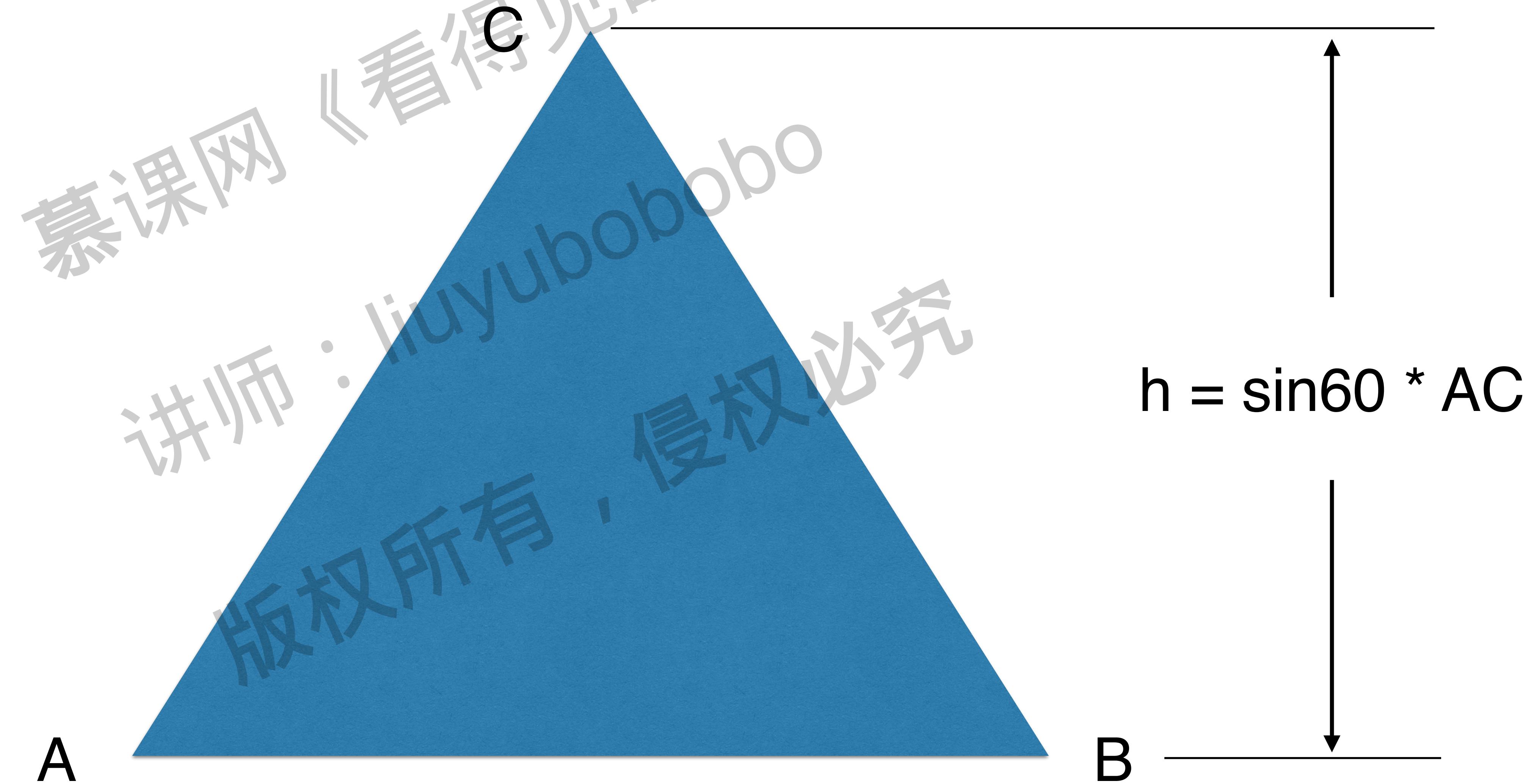
# Sierpinski Carpet

演示：编码 Sierpinski carpet

# Sierpinski Triangle



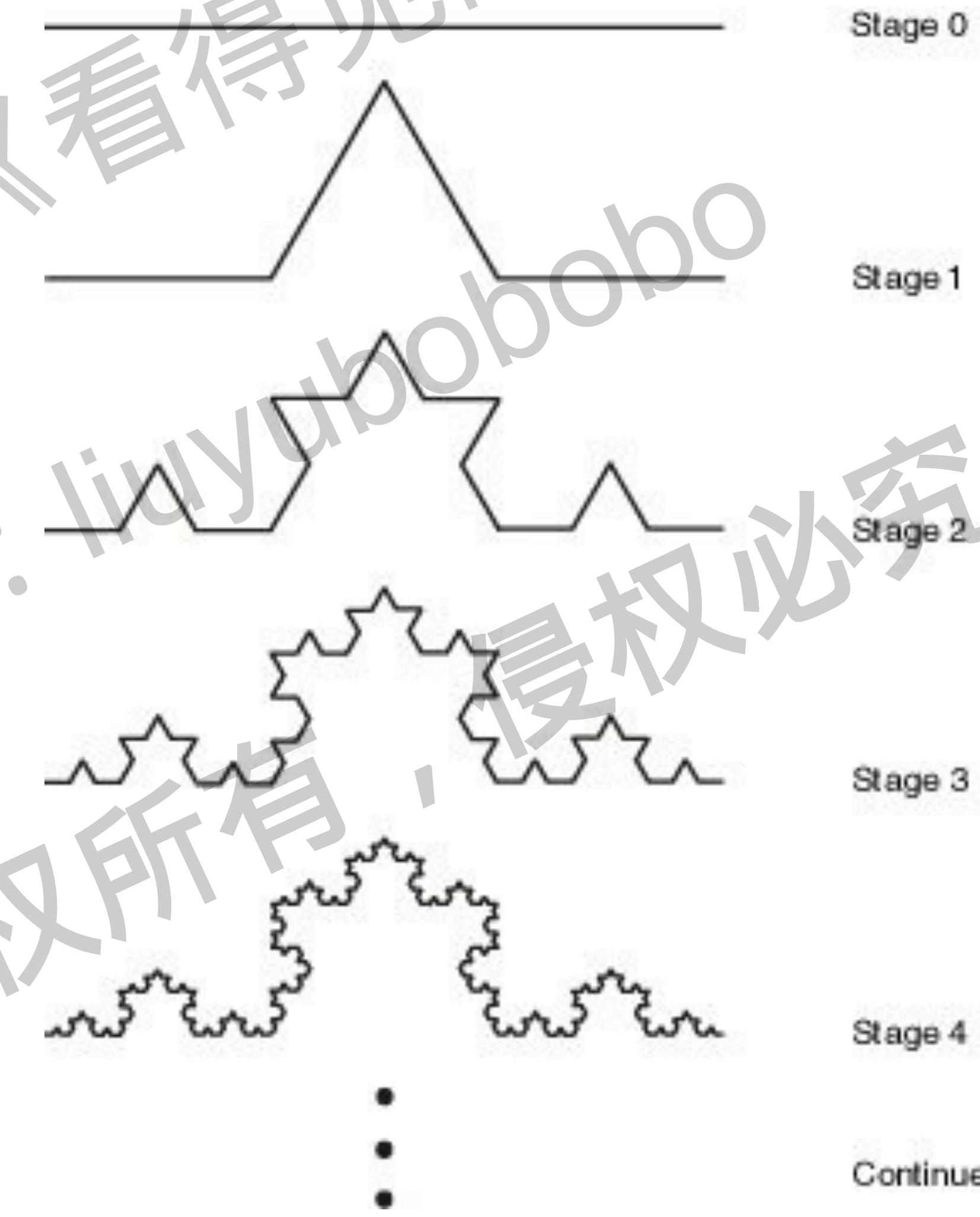
# Sierpinski Triangle



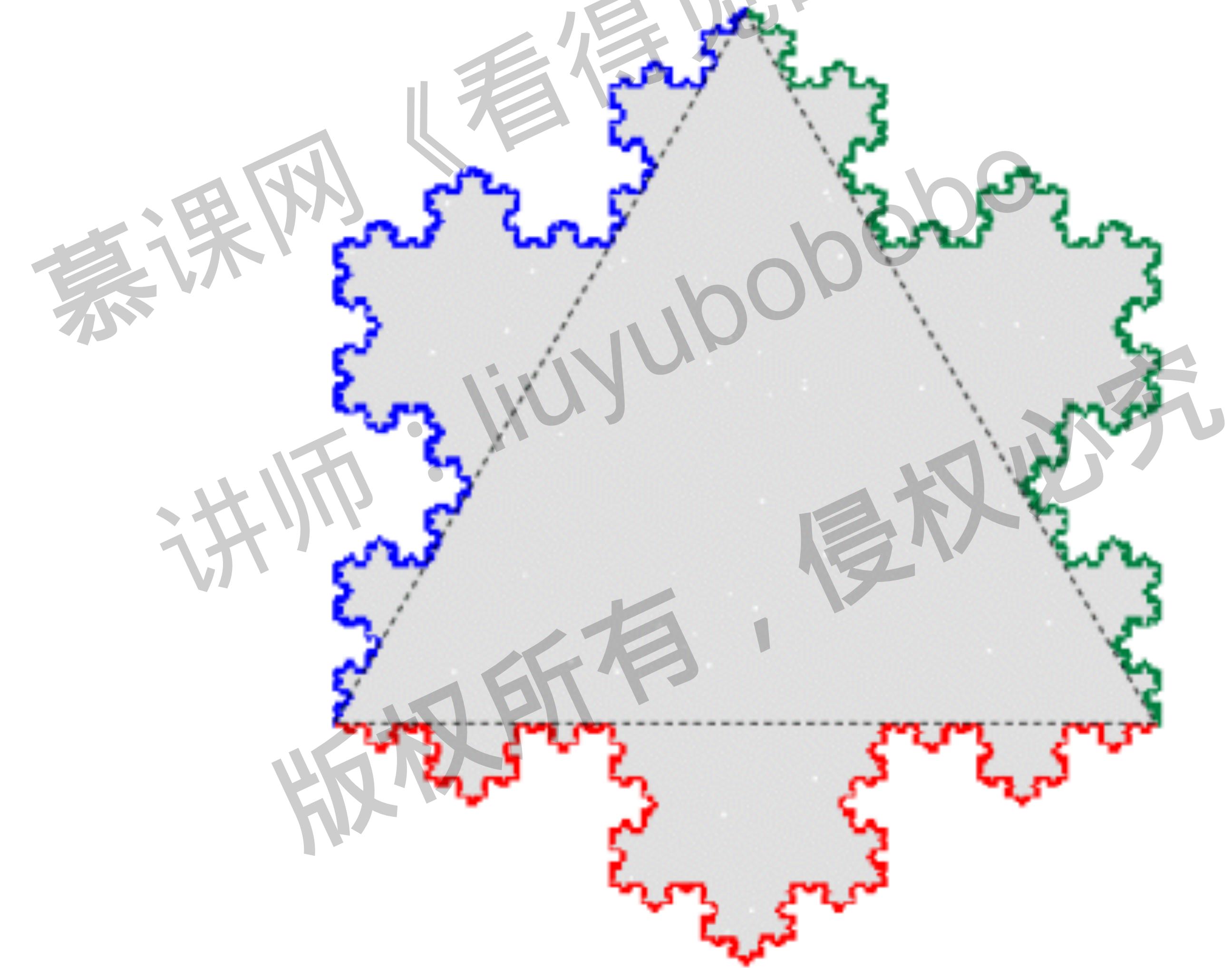
# Sierpinski Triangle

演示：编码 Sierpinski Triangle

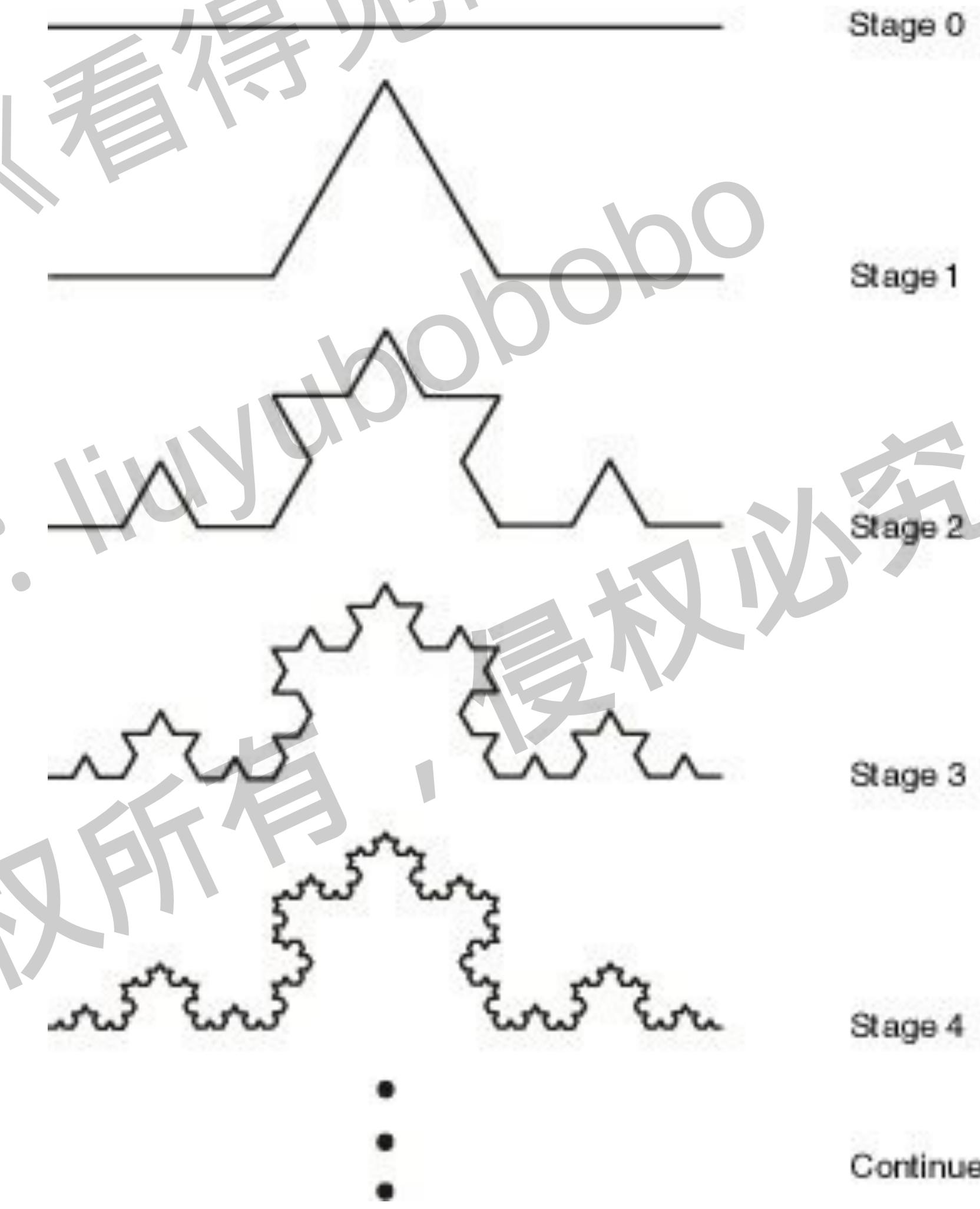
# Koch Snowflake



# Koch Snowflake



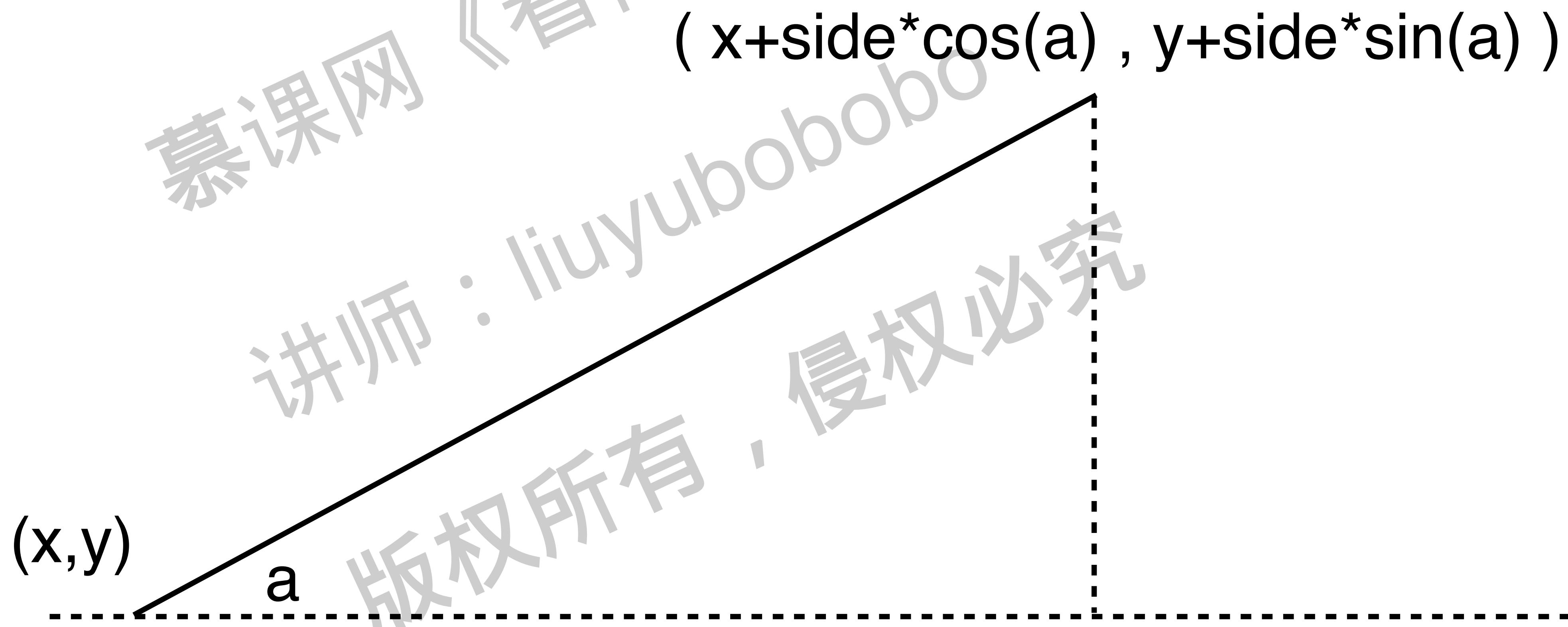
# Koch Snowflake



# Koch Snowflake

演示：编码 Koch Snowflake 基本代码

# Koch Snowflake

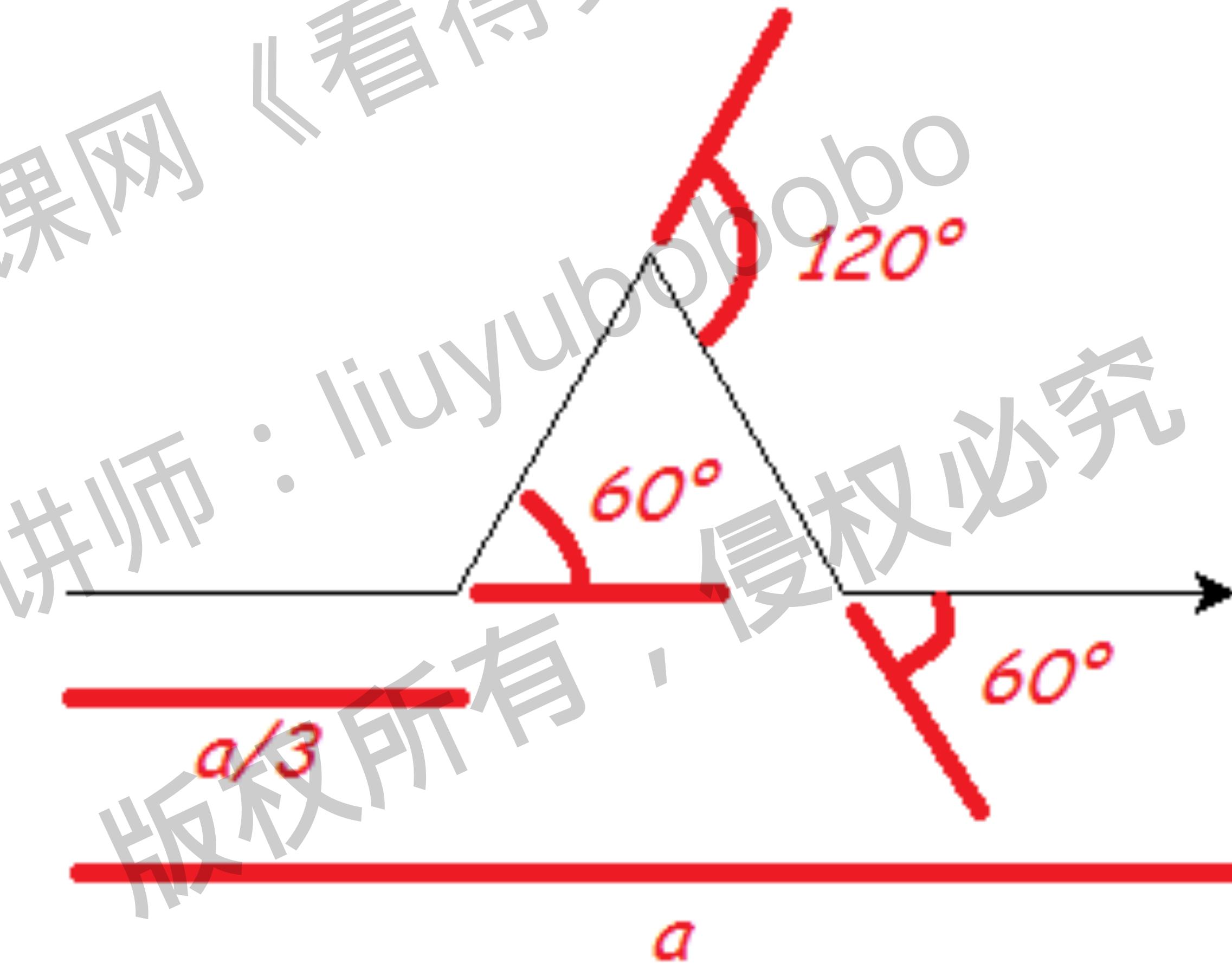


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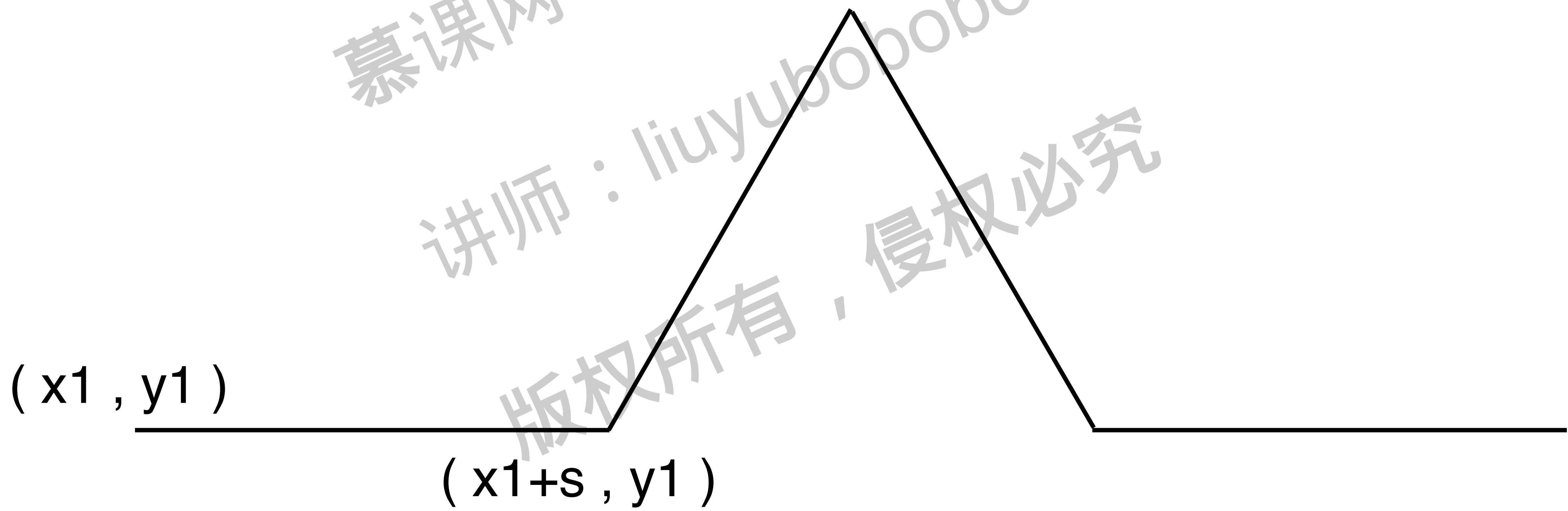
# Koch Snowflake

演示：编码·Koch Snowflake 递归终止条件

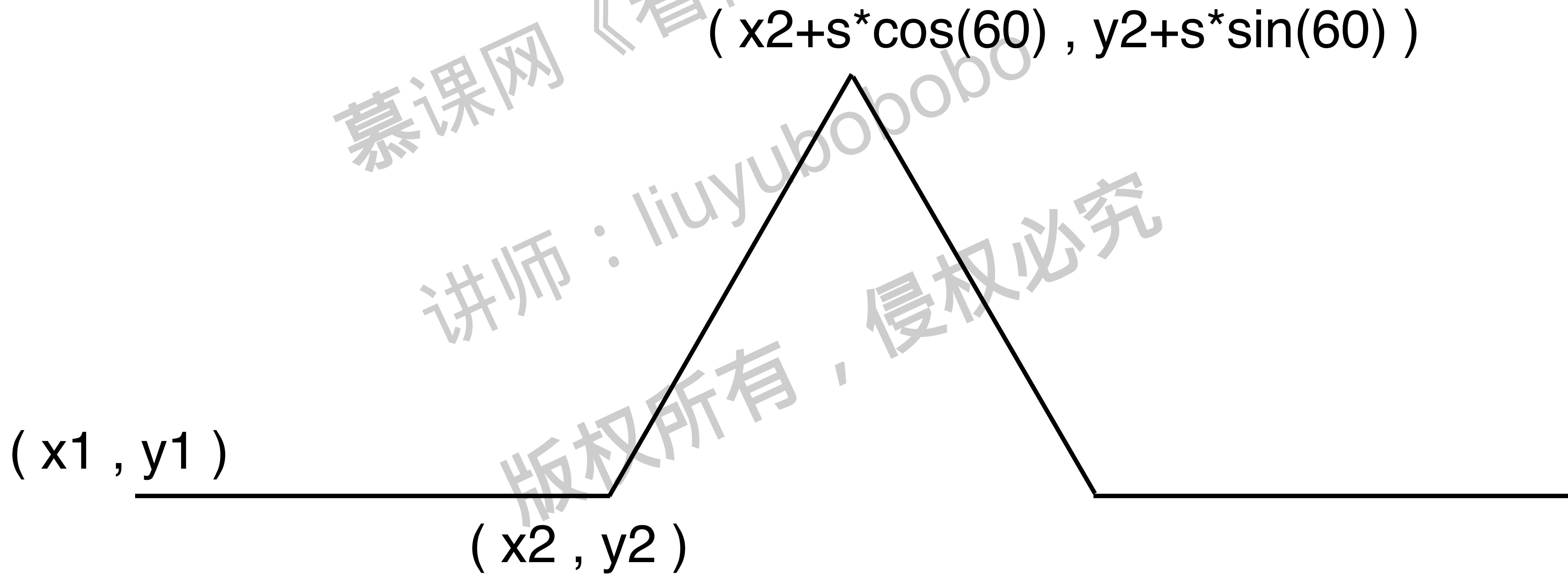
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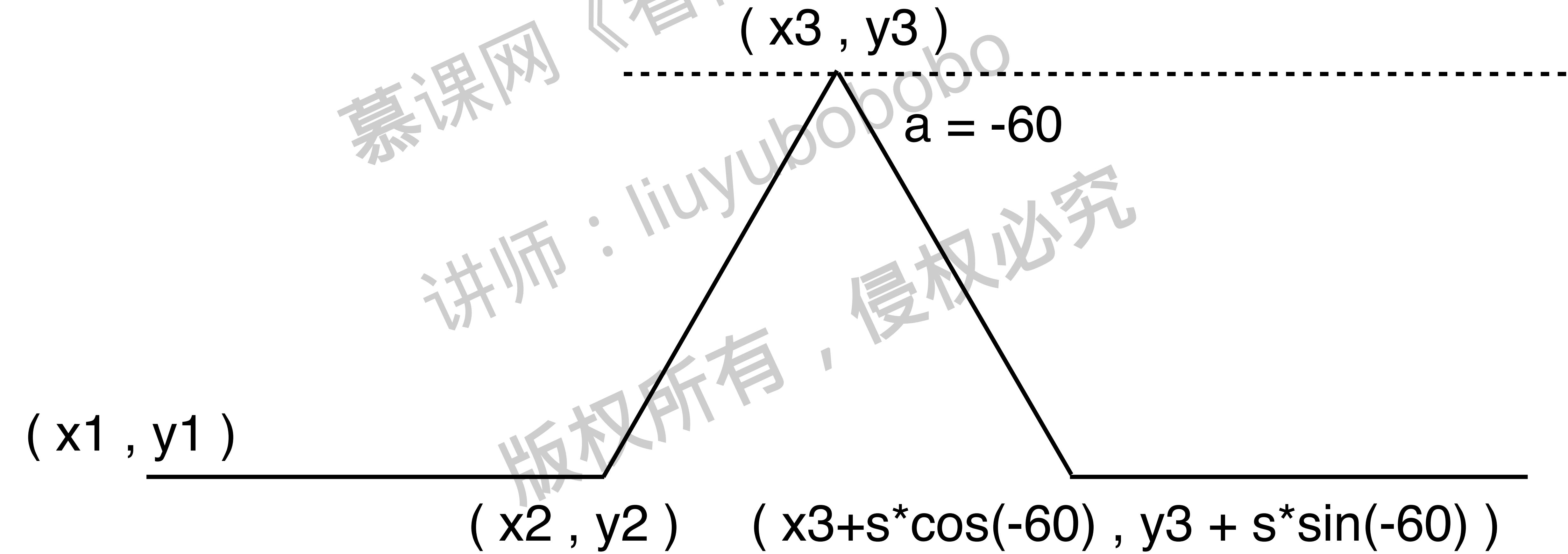
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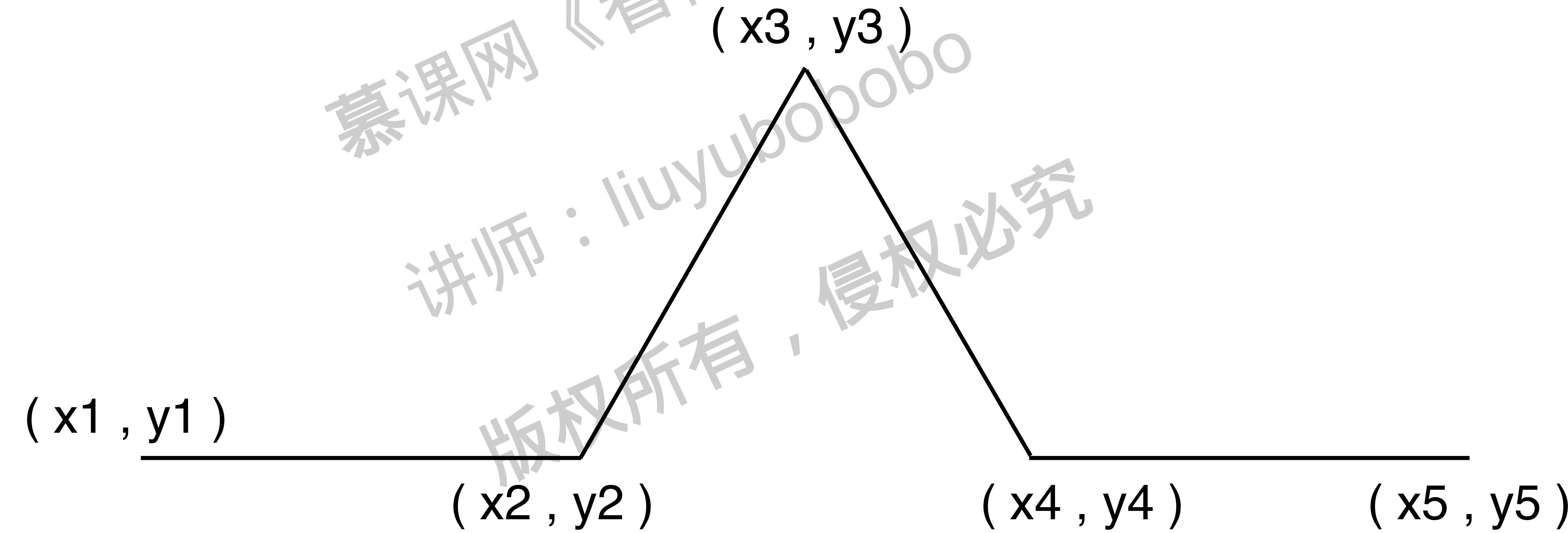
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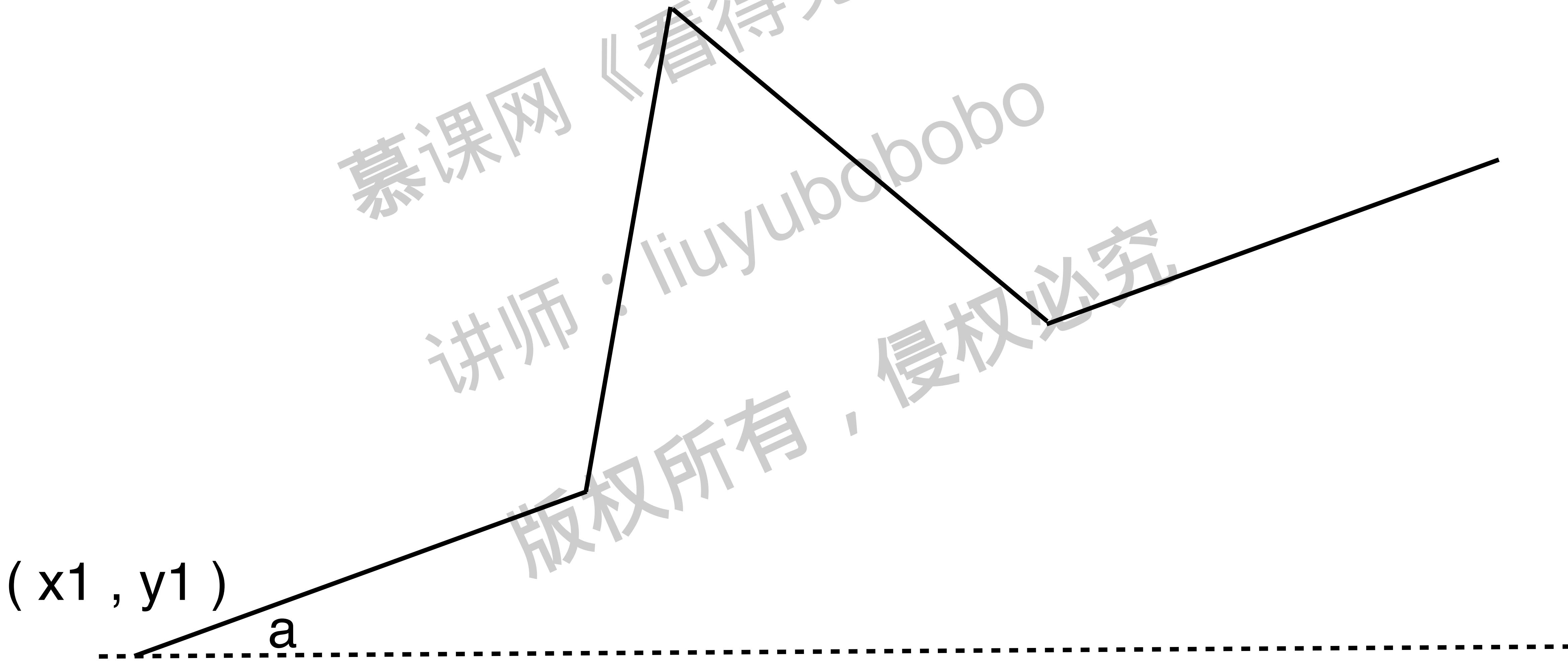
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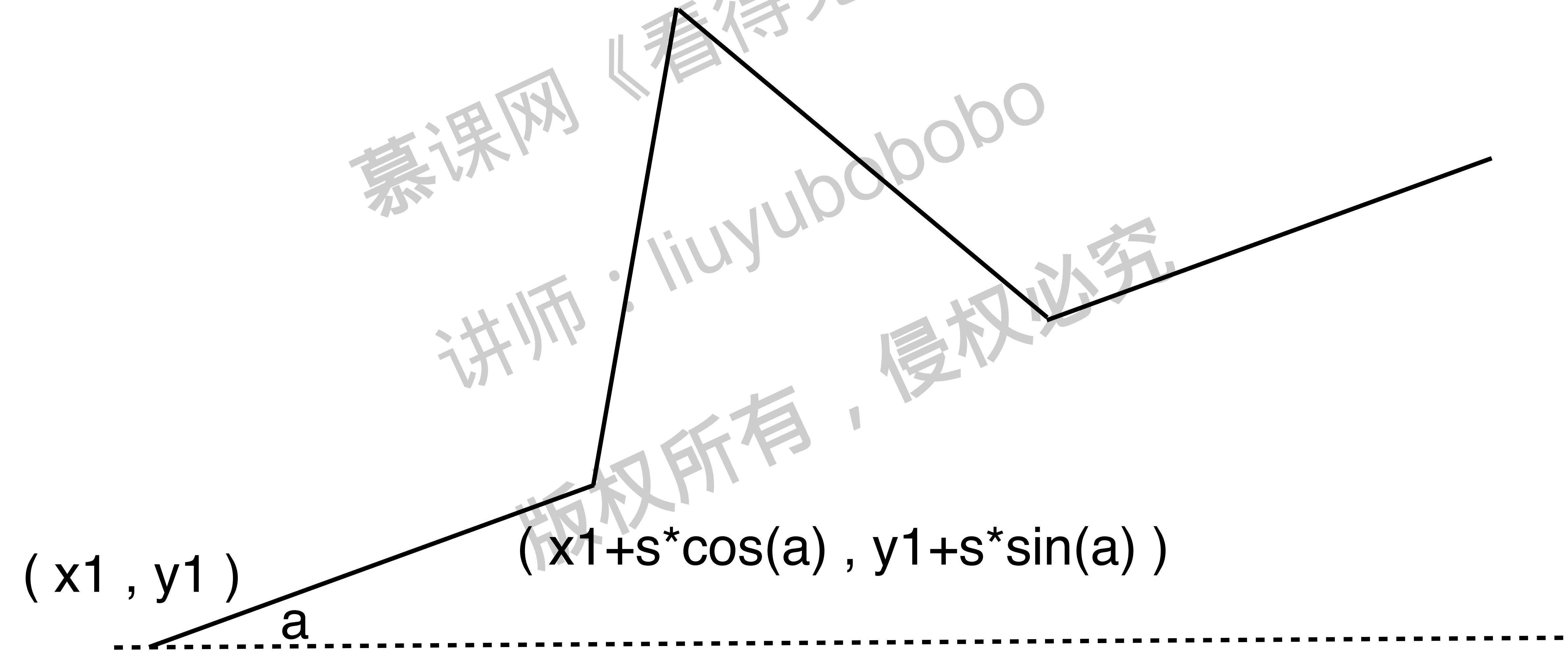
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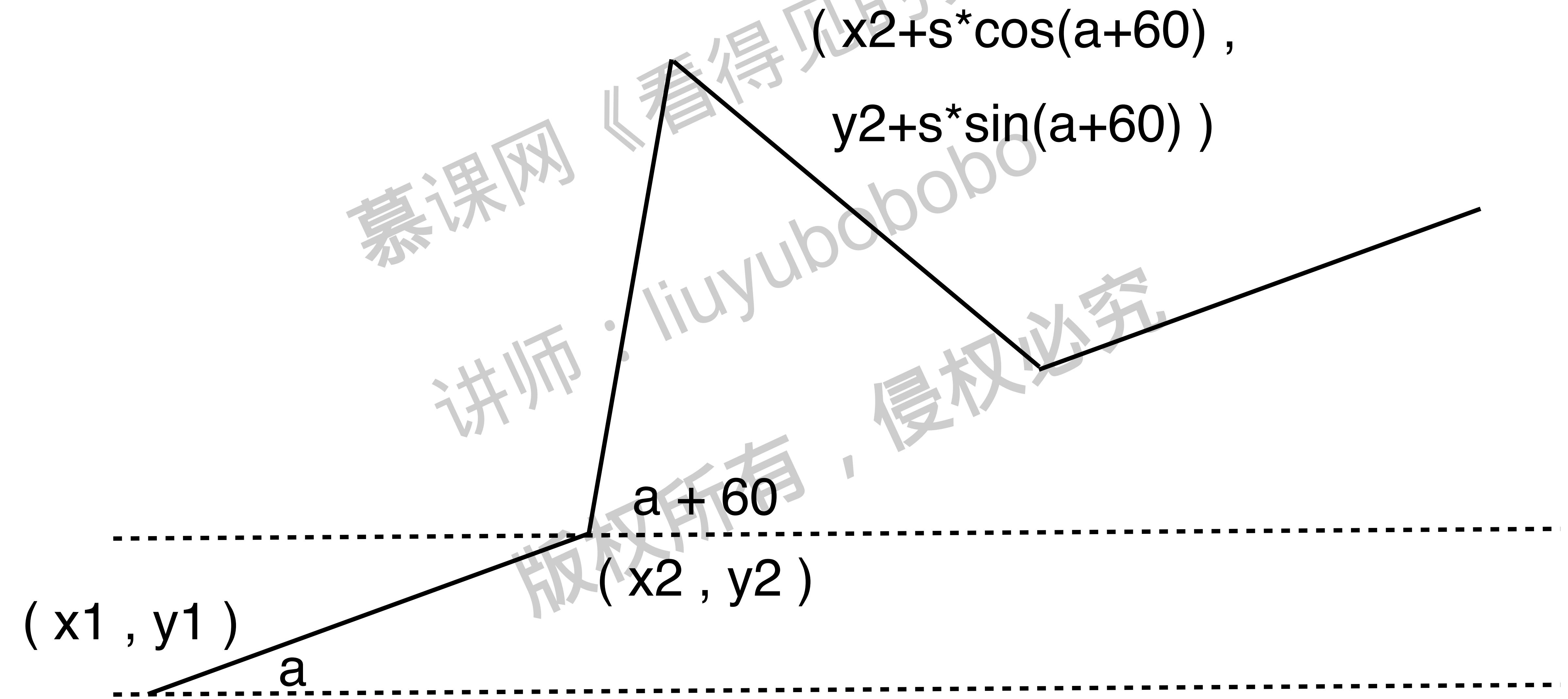
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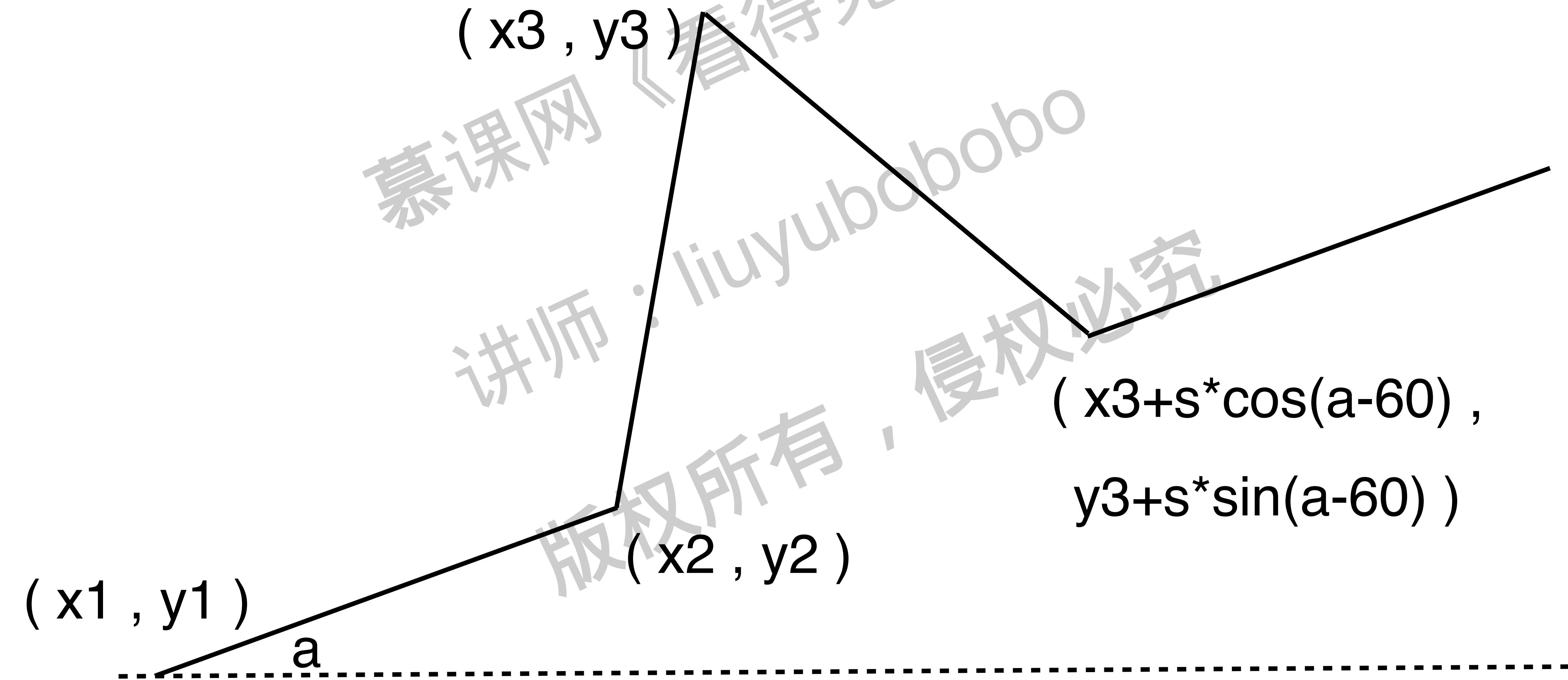
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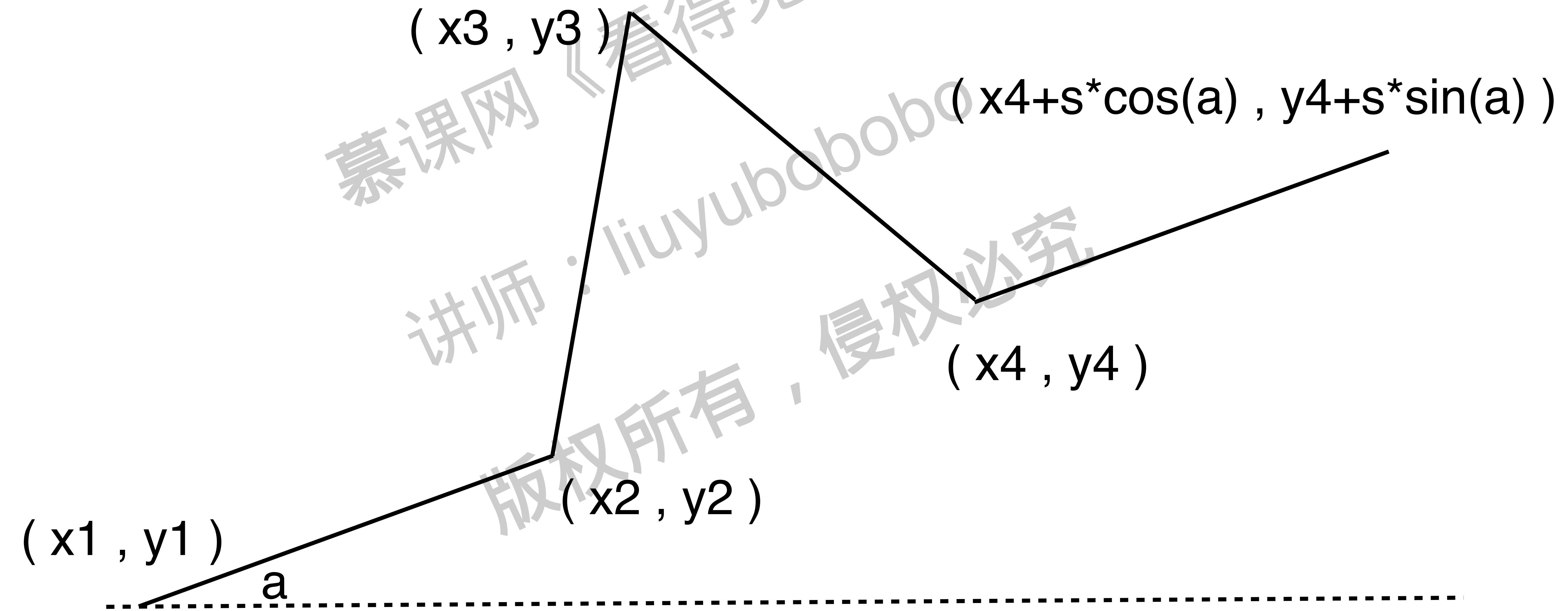
# Koch Snowflake



# Koch Snowflake



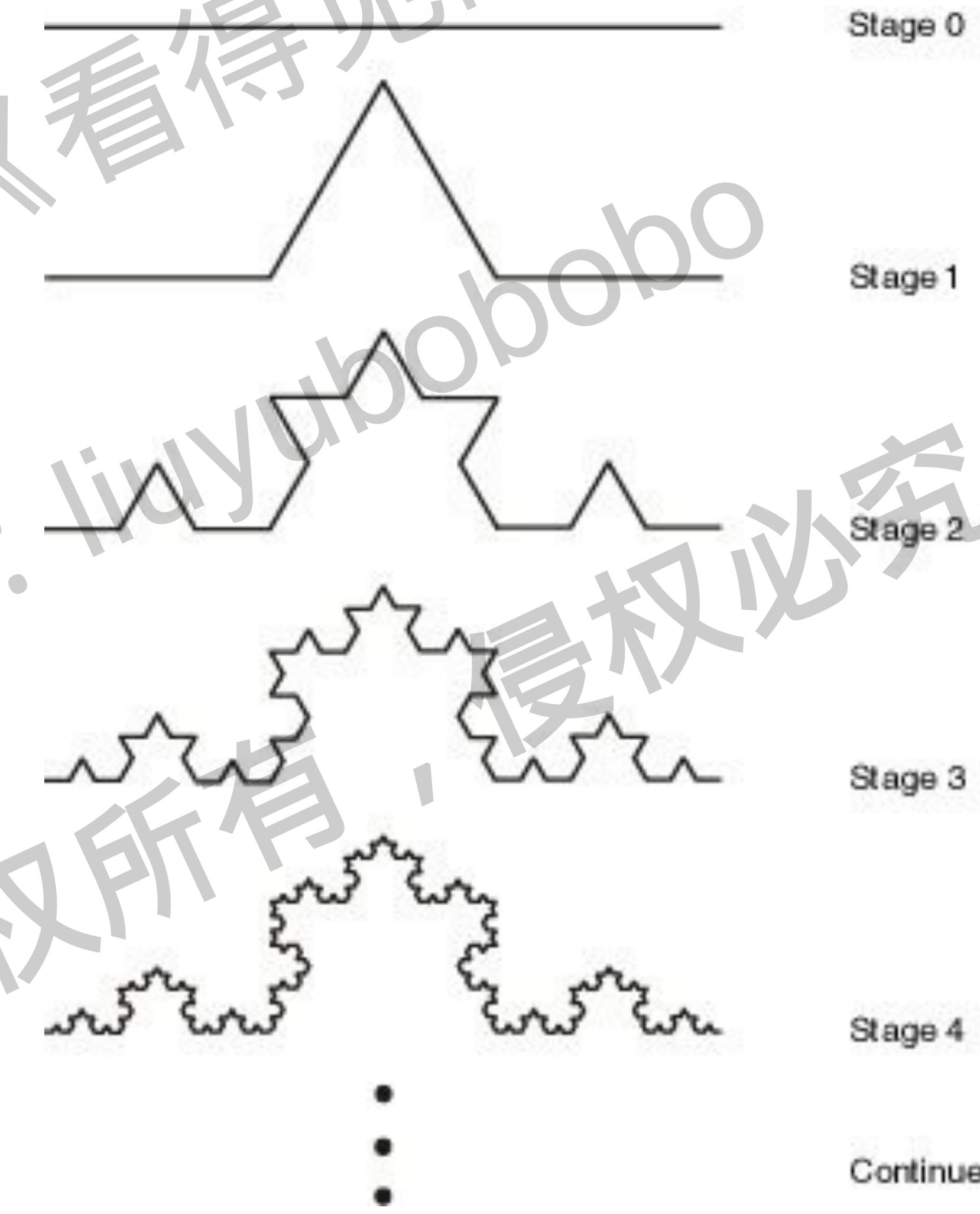
# Koch Snowflake



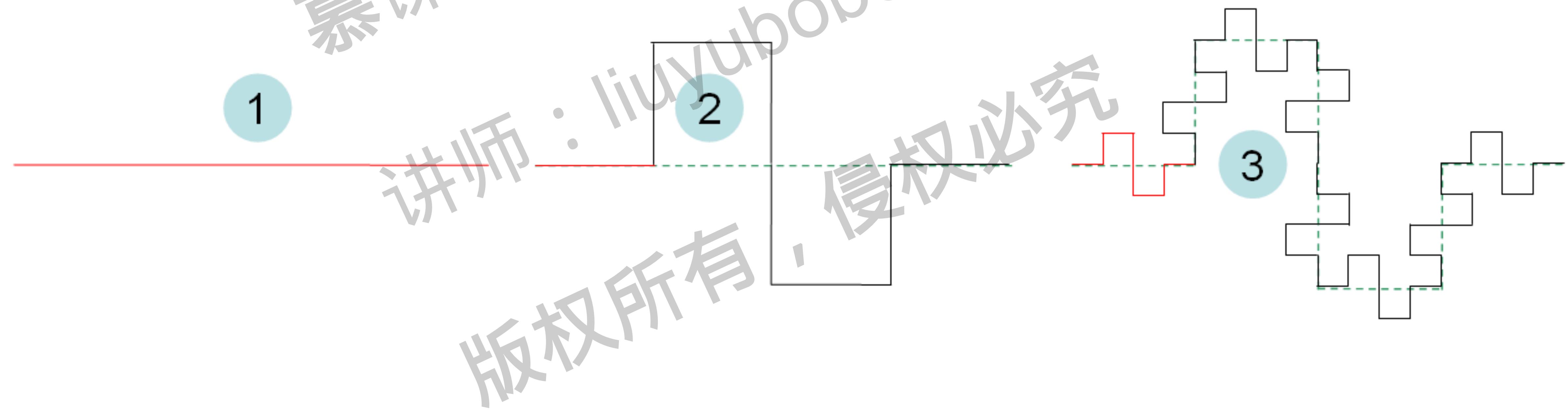
# Koch Snowflake

演示：编码完成 Koch Snowflake

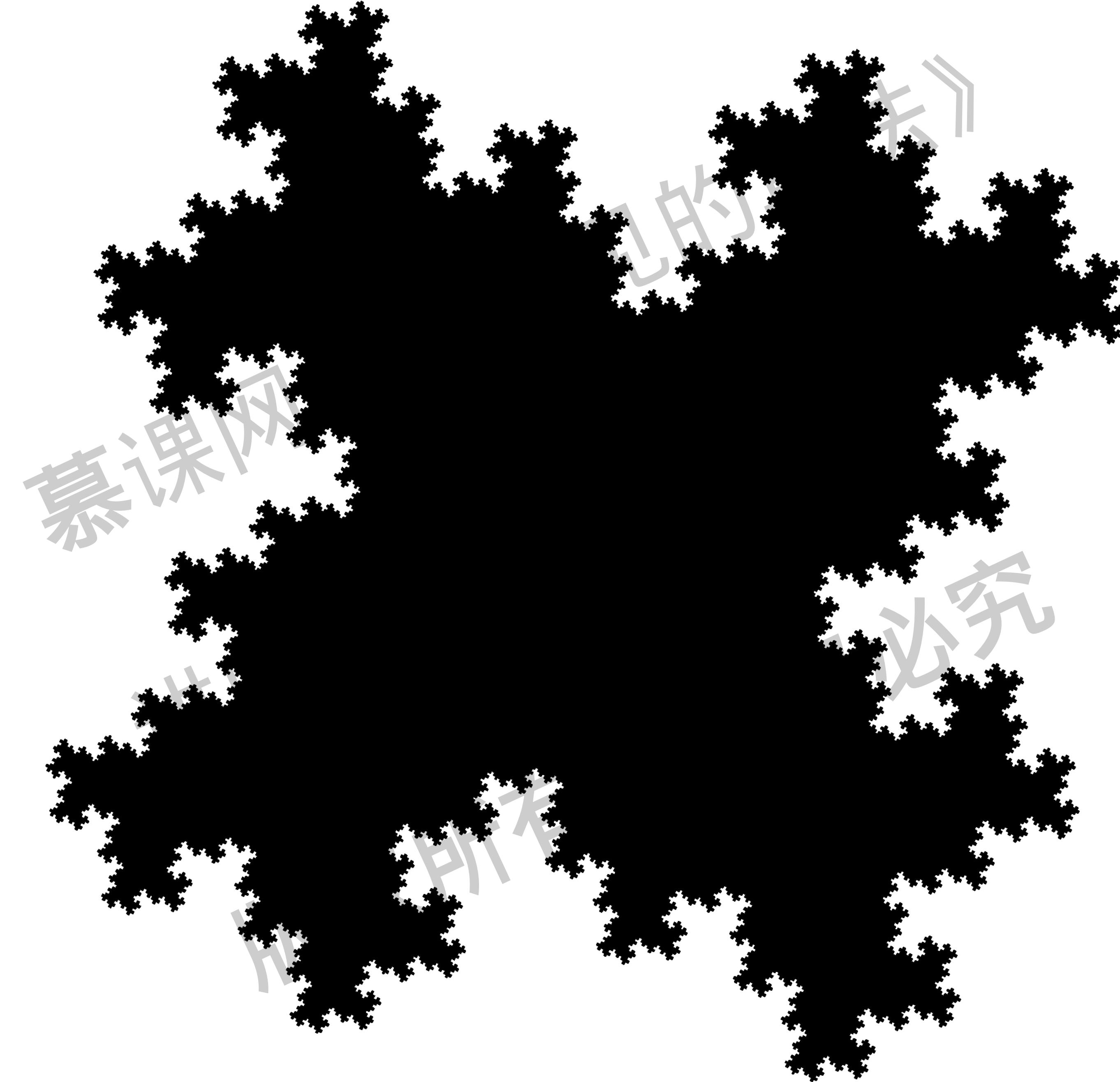
# Koch Snowflake



# Koch Snowflake





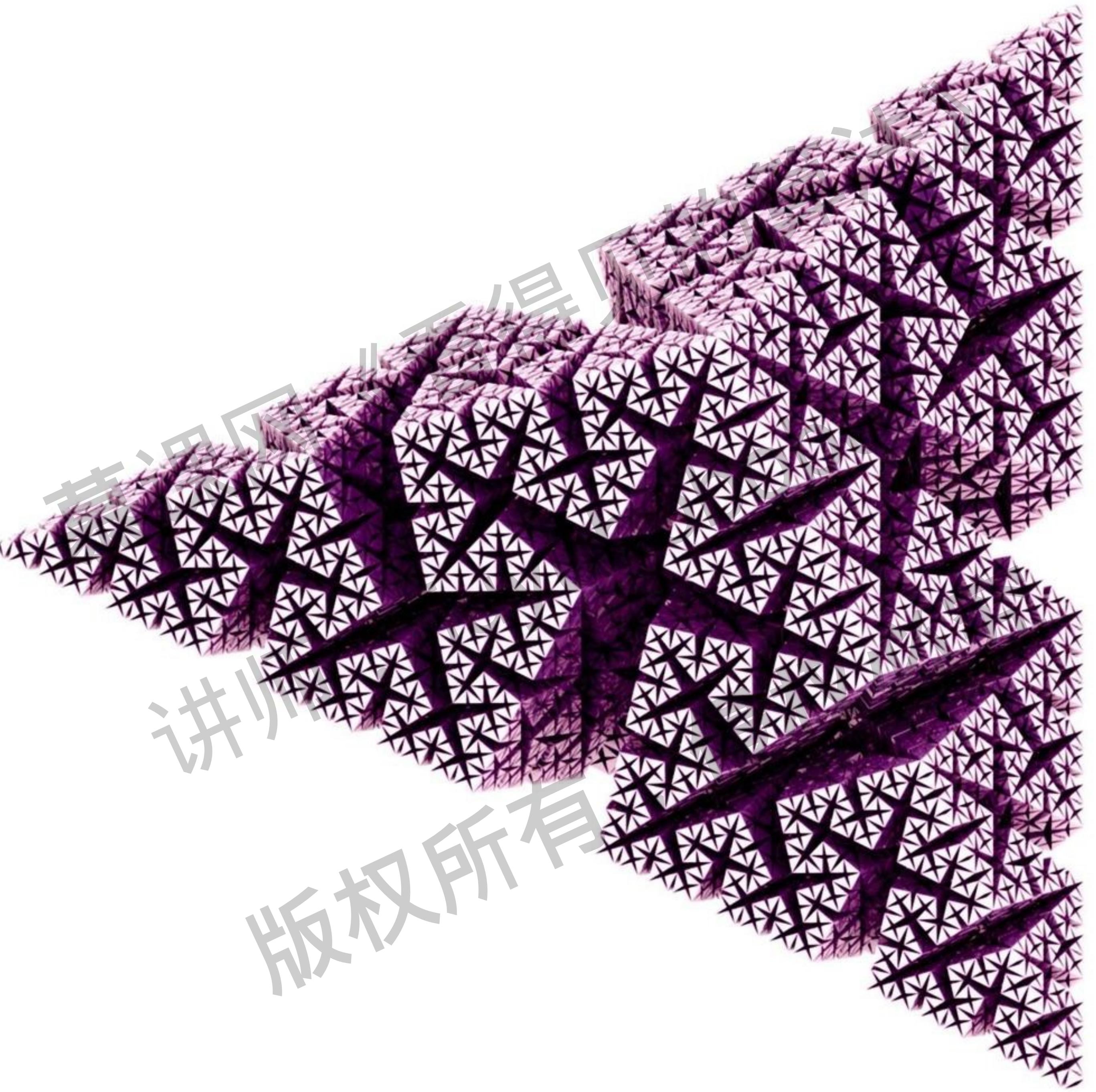


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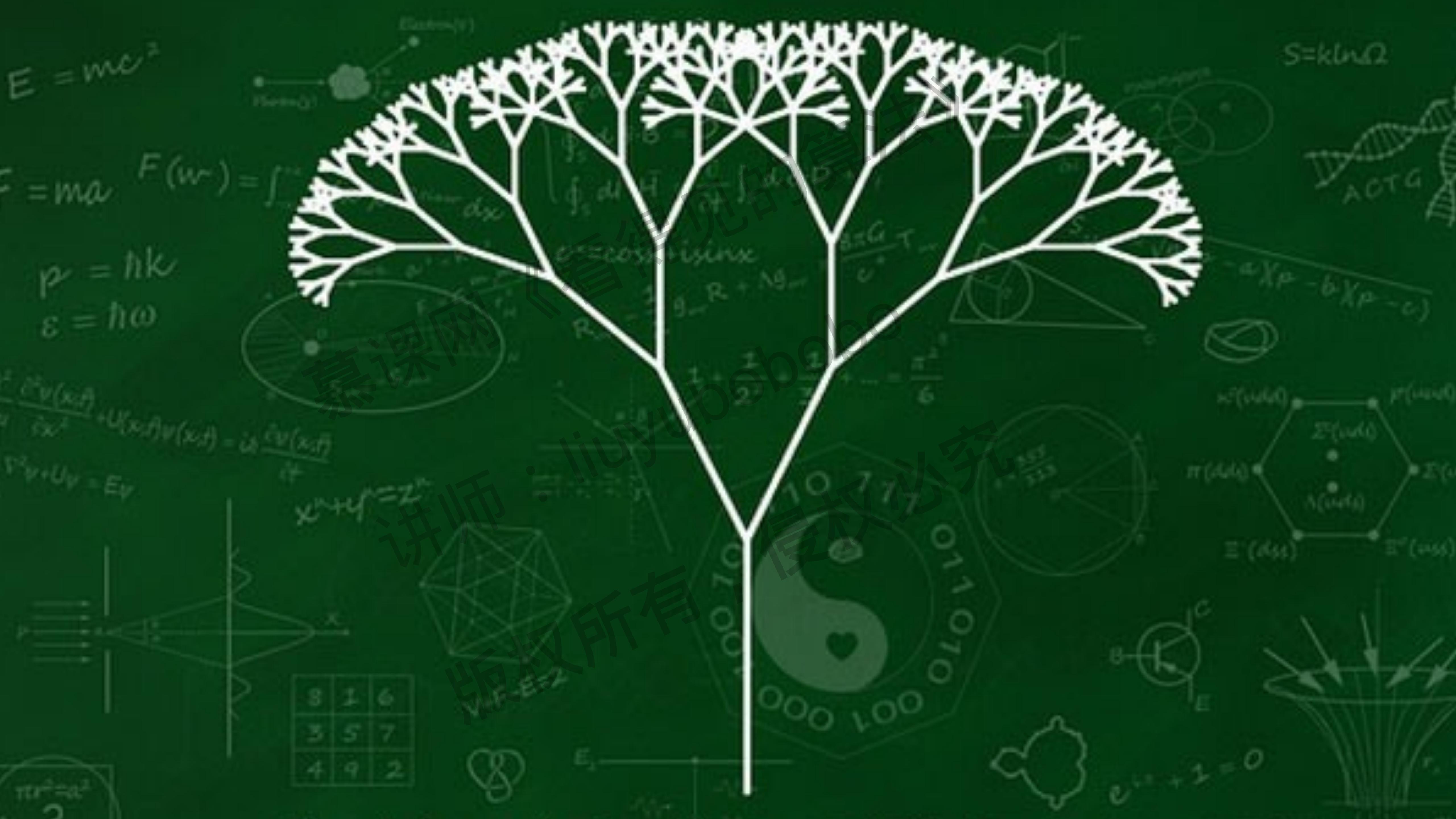
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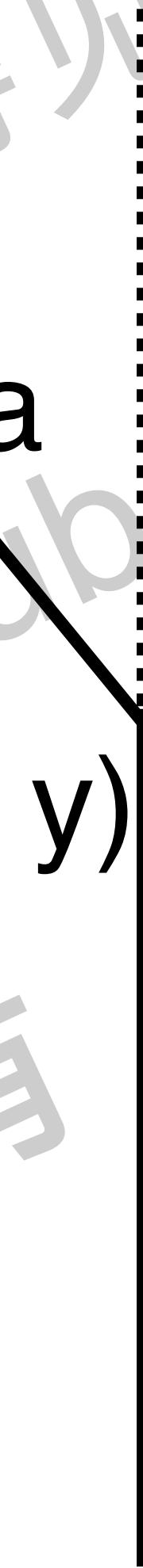
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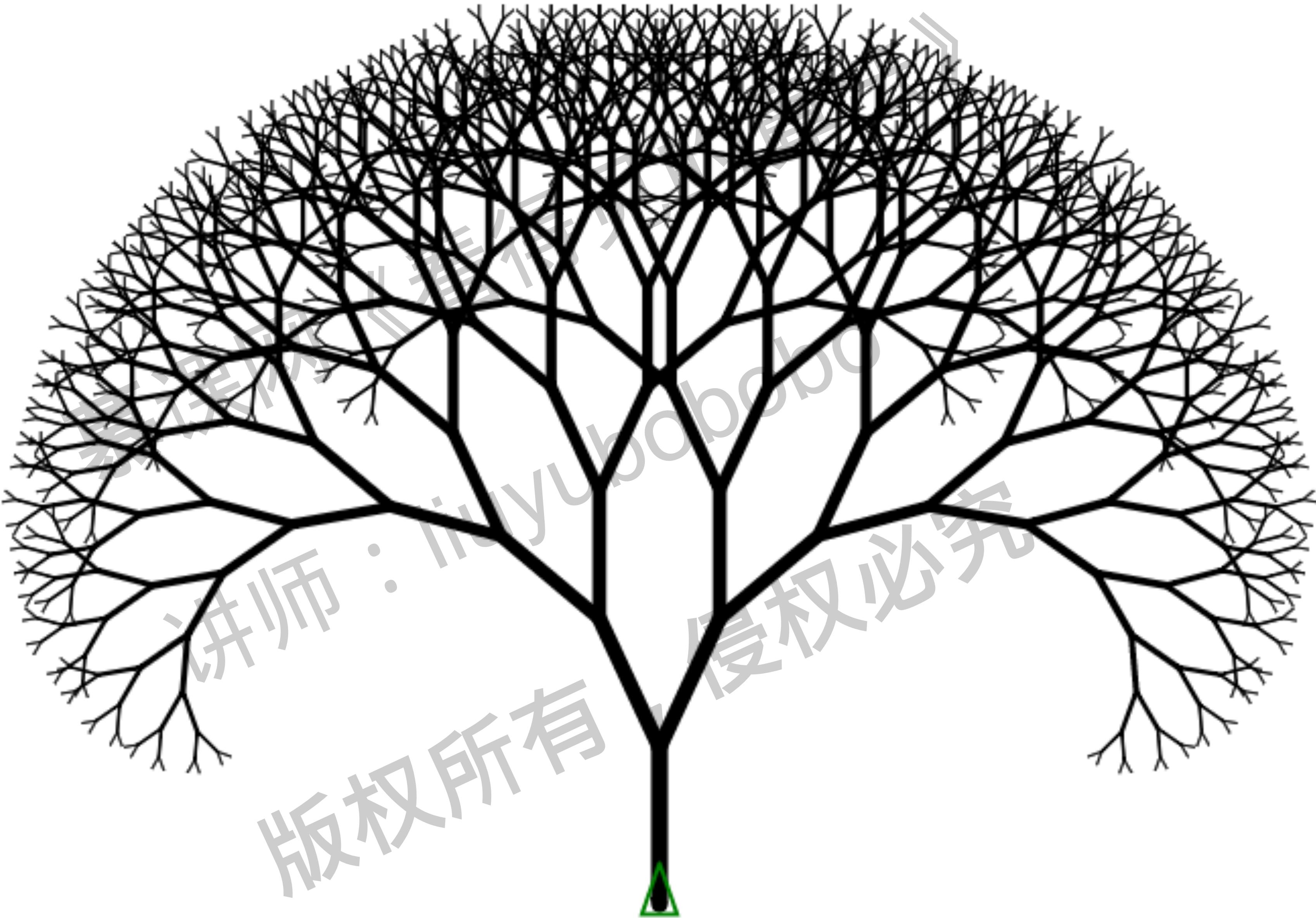
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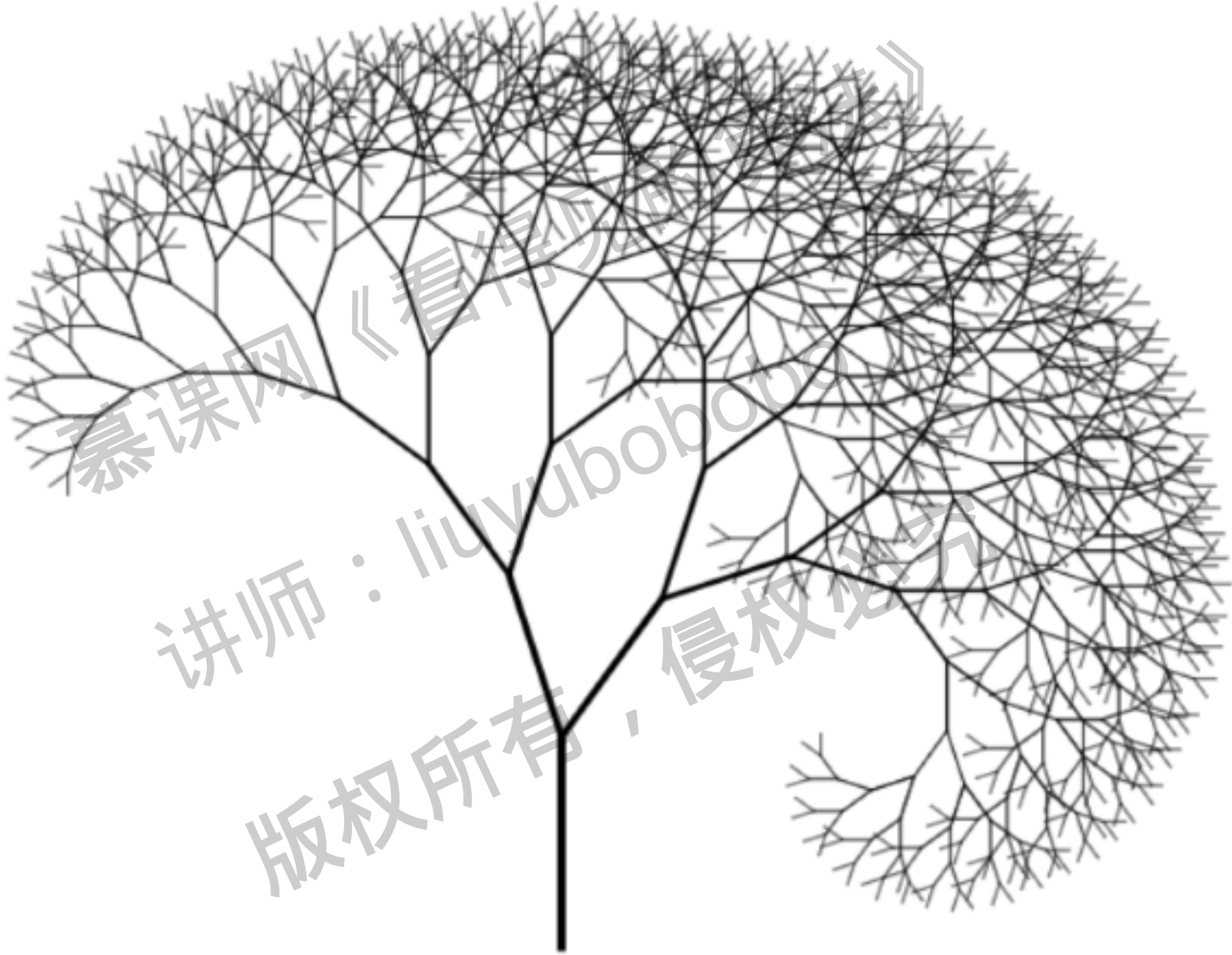
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演示：编码完成树的分形绘制



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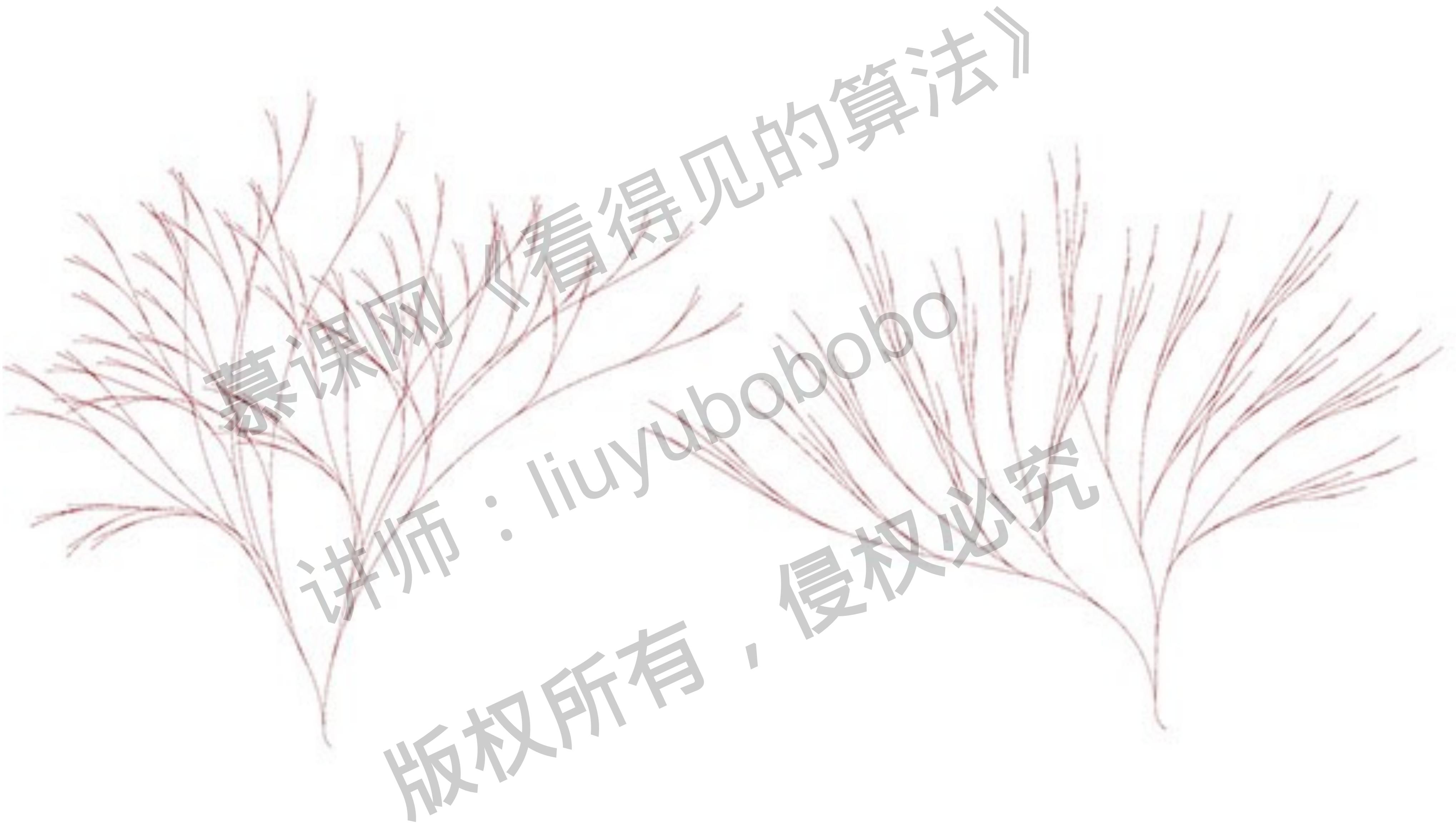


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