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昆虫振翅飞行的数值模拟

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摘要：在非惯性参考系下对昆虫振翅扰动的二维非定常流场进行了数值模拟，避免了计算中的移动边界困难，从而缩短了计算时间，模型具有3个自由度，可以模拟任意已知的翅的平面运动。通过模拟相对复杂的自然界昆虫的振翅运动，研究昆虫是如何控制飞行。计算结果表明，有2个参数可能被昆虫用来控制飞行：翅平动和转动间的相位差以及垂直于平均振翅平面方向的横向振幅。

关键词：昆虫飞行；数值模拟；相位差
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