# Springer LNCS Example Paper

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**Abstract.** The abstract should summarize the contents of the paper using at least 70 and at most 150 words. It will be set in 9-point font size and be inset 1.0 cm from the right and left margins. There will be two blank lines before and after the Abstract. . . .

**Keywords:** computational geometry, graph theory, Hamilton cycles

## 1 Hamilton

### 1.1 Autonomous Systems

In this section, we will consider the case when the Hamiltonian $H(x)$ is autonomous. For the sake of simplicity, we shall also assume that it is $C^1$.

**The General Case: Nontriviality.**

$$\gamma := \text{smallest eigenvalue of} \quad B_\infty - A_\infty \tag{1}$$

$$\lambda := \text{largest negative eigenvalue of} \quad J\frac{d}{dt} + A_\infty \ . \tag{2}$$

**Proposition 1.** *Assume $H'(0) = 0$ and $H(0) = 0$. Set:*

$$\delta := \liminf_{x \to 0} 2N(x) \left\| x \right\|^{-2} \ . \tag{3}$$

*If $\gamma < -\lambda < \delta$, the solution $\overline{u}$ is non-zero:*

$$\overline{x}(t) \neq 0 \quad \forall t \ . \tag{4}$$

*Proof.* Condition (3) means that, for every $\delta' > \delta$, there is some $\varepsilon > 0$ such that

$$\left\| x \right\| \leq \varepsilon \Rightarrow N(x) \leq \frac{\delta'}{2} \left\| x \right\|^2 \ . \tag{5}$$

**Lemma 1.** *Assume that $H$ is $C^2$ on $\mathbb{R}^{2n} \backslash \{0\}$ and that $H''(x)$ is non-degenerate for any $x \neq 0$. Then any local minimizer $\widetilde{x}$ of $\psi$ has minimal period $T$.*

*Proof.* We know that $\widetilde{x}$, or $\widetilde{x} + \xi$ for some constant $\xi \in \mathbb{R}^{2n}$, is a $T$-periodic solution of the Hamiltonian system:

$$\dot{x} = JH'(x) \ . \tag{6}$$

FF. $\square$

**Table 1.** This is the example table taken out of *The TEXbook,* p. 246

| Year | World population |
|---|---|
| 8000 B.C. | 5,000,000 |
| 50 A.D. | 200,000,000 |
| 1650 A.D. | 500,000,000 |
| 1945 A.D. | 2,300,000,000 |
| 1980 A.D. | 4,400,000,000 |

**Theorem 1 (Ghoussoub-Preiss).** *Assume $H(t,x)$ is* $\square$

*Example 1 (*External forcing*).* Consider the system:

$$\dot{x} = JH'(x) + f(t) \tag{7}$$

**Definition 1.** *Let $A_\infty(t)$ and $B_\infty(t)$ be symmetric*

*Notes and Comments.* The first results on subharmonics were

## References


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