3. The Trace Formula of Problem (1). Let us rewrite Eq. (11) in the form

$$\sum_{n=0}^{\infty} [\lambda_{mn} - (2m + 4n + 2) - A_m/\sqrt{n+1} - c_0 A_m / c\,(n+1)^{3/2}] = 0, \tag{12}$$

where $c = \sum_{n=0}^{\infty} 1/(n+1)^{3/2}$. Multiplying (12) by ε_m and summing over m, we arrive at the theorem.

THEOREM. Let q(r) be a continuous real-valued function equal to zero outside the interval [ε, a] (0 < ε < a). Then the regularized trace formula of problem (1) has the form

$$\sum_{m=0}^{\infty} \varepsilon_m \sum_{n=0}^{\infty} [\lambda_{mn} - (2m + 4n + 2) - A_m/(n+1)^{1/2} - c_0 A_m/(c\,(n+1)^{3/2})] = 0,$$

where

$$A_m = 1/\pi \int_{\varepsilon}^{a} (q(r)/r^m)\, dr, \quad c = \sum_{n=0}^{\infty} 1/(n+1)^{3/2},$$
$$\varepsilon_0 = 1, \quad \varepsilon_1 = \varepsilon_2 = \ldots = 2,$$

and the constant c_0 is determined by Eq. (9).

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AN INDICATOR OF THE NONCOMPACTNESS OF A FOLIATION ON M_g^2

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1. Preliminary Definitions. Let us consider a closed form ω defined on a manifold M and possessing nondegenerate isolated singularities.

Definition 1 [1]. A point $p \in M$ is called a regular singularity of ω, if in some neighborhood O(p) ω = df, where f is a Morse function, having a singularity at p.

The form ω determines a foliation F_ω on the set M − Sing ω.

Definition 2. Let us consider γ-nonsingular compact leaves F_ω and the mapping $\gamma \to [\gamma] \in H_1(M_g^2)$. Its image generates a subgroup in $H_1(M_g^2)$. Let us denote it by H_ω.

Definition 3. [2] Let $[z_1], \ldots, [z_{2g}]$ be some basis of cycles in $H_1(M_g^2)$, then

$$\operatorname{dirr} \omega = \operatorname{rk}_{\mathbb{Q}} \left\{ \int_{z_1} \omega, \ldots, \int_{z_{2g}} \omega \right\} - 1.$$

By M_ω let us denote the set obtained by discarding all maximal neibhborhoods consisting of diffeomorphic compact leaves and all leaves which can be compactified by adding singular points.

It was proved in [2] that in the case dirr ω ≤ 0 always $M_\omega = \varnothing$. The object of this paper is to indicate for a foliation on the surface M_g^2 a sufficient condition that $M_\omega \neq \varnothing$. Namely (Theorem 2): if g ≠ 0 and dirr ω ≥ g, then $M_\omega \neq \varnothing$.

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