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Abstracts of Short Communications and Posters

Section:

6. Topology

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De Rham cohomology with local coefficients
In 1986 S. P. Novikov raised the question of investigation of the De Ram complex's cohomology with the differential $d + t\omega$, where t is a complex parameter and ω – a closed 1-form on a compact manifold M^n. He offered the spectral sequence convergent to the cohomology with local coefficients $\rho(\gamma) = \exp\int_\gamma \omega, \quad \gamma \in H_1(M^n, Z)$ and differentials are computed by means of the special Massey products.
We have succeeded in generelizing Novikov's results in case of nonabelian representation of the fundamental group.
Let the fundamental group of M^n be nilpotent and Ω_0 – a matrix-valued, closed 1-form. Assume for any $n > 0$ there are 1-forms $\Omega_1, \Omega_2, \ldots$ such, that $d\Omega_k = -\sum_{i<k} \Omega_i \wedge \Omega_{k-1-i}$ for any $k < n$.
In this case we showed that appropriate spectral secuence converges to the cohomology with nonabelian representation.