V. L. Ginzburg and L. M. Ozernoĭ, *The Nature of Quasars and the Active Nuclei of Galaxies.* It has come to be generally recognized in recent years that quasars are massive galaxies at cosmological distances whose total masses are determined by their stars, while the phenomenon of intense activity is due to a compact source situated at the center of the stellar system. Its activity is in many ways similar to that of the nuclei of "ordinary" galaxies; hence the now widely held view that the energy sources in quasars and active galactic nuclei are of the same nature.

The paper, whose content is set forth in detail in[1,2], presents a critical discussion of contemporary conceptions as to the nature of this activity source. The ultramassive rotating magnetic-plasma body (magnetoid), the accretionary black hole, and the compact star cluster are among the most probable sources. The basic properties of these sources (compactness, powerful radiation, sufficiently long lifetime) are qualitatively similar. Although these conceptions as to the nature of the activity are essentially quite different, this makes it difficult to choose between them, and detailed elaboration of the corresponding models is necessary. Examination of existing models in the light of recent data (and especially of recent results pertaining to the nature of the optical variability of several objects) indicates that the compact star cluster models are implausible. The magnetoid model appears least vulnerable. However, a final choice between the magnetoid and the accretionary black hole will become possible only with further detailing of these models and the appearance of new observational data.

[1]L. M. Ozernoĭ, Usp. Fiz. Nauk, **120**, 309 (1976) [Sov. Phys. Usp. **19**, 863 (1976)].
[2]V. L. Ginzburg and L. M. Ozernoĭ, Astrophys. Space Sci. (in preparation).

I. L. Fabelinskiĭ, V. S. Starunov, A. K. Atakhodzhaev, T. M. Utarova, and G. I. Kolesnikov, *Narrowing of Optical Depolarization-Scattering Spectra Near the Critical Separation Point of Solutions.* Study of scattered-light spectra in the neighborhood of the critical point has yielded extensive information on the behavior of the correlation radius, compressibility, and thermal diffusivity of liquids, the mutual translational diffusion coefficients of solutions, the elastic constants of solids, and other properties of matter.

In our recent studies,[1-6] which the present paper describes, an attempt is made to study the temperature kinetics of the depolarized spectrum and thereby to establish the nature of the oriented motion of anisotropic molecules in the neighborhood of the critical separation point of solutions.

We studied the change in the width of the Rayleigh-line wing (RLW) due to anisotropy fluctuation and the change in the part of the depolarized Raman-scattering line (RSL) width that is due to oriented molecular motion and therefore of the same nature as the RLW.[7-9] Since the distribution of intensity in the RLW and RSL is of complex nature, study of the temperature kinetics of the depolarized spectrum requires an adequate method and careful reduction of the measurement results. In studying the RLW in solutions, we used six different Fabry–Perot standards with dispersion ranges from 62 to 1 cm^{-1} to monitor the temperature kinetics on a certain segment (Lorentzian) of the RLW and thoroughgoing methods to reduce the measurement results.[1-6] In[5], we studied the possible misconceptions that can arise when an inadequate method of investigation is used. The intensity distributions in the RLW are described by two Lorentzians in pure liquids and by as many as three in solutions, not counting the remote part of the RLW, which is not described by a Lorentzian and was present in our experiments in the form of a continuous uniform background in the spectrum. The half-width $\delta\omega$ of the corresponding Lorentzian is simply related to the anisotropy relaxation time: $\tau = \delta\omega^{-1}$. We studied the RLW in the following solutions: *n*-hexane-nitrobenzene,[1,2,5] *n*-dodecane-β,β'-dichlorodiethyl ether,[2,5] *n*-hexadecane-β,β'-dichlorodiethyl ether,[6] and carbon disulfide-ethyl alcohol.[3] In all of the cases studied, we observed a nonmonotonic narrowing of the RLW or an increase in the relaxation time τ as the temperature approached the separation point. This narrowing of the RLW varies from one order of magnitude in the carbon disulfide-ethyl alcohol solution to several orders in the *n*-dodecane-β,β'-dichlorodiethyl ether solution.

By way of example, Fig. 1 shows the temperature kinetics of τ in an *n*-dodecane-β,β'-dichlorodiethyl ether solution. The coordinates are $\ln\tau$ and $-\ln\varepsilon$, where $\varepsilon = (T - T_c)/T_c$; T_c is the critical temperature. In this example, we see three segments with rapid increase of τ; in other cases, there are two of them, and there is only such segment in the case of the carbon disulfide-ethyl alcohol solution.

We studied the temperature kinetics of the depolarized 656 cm^{-1} line of carbon disulfide in the carbon di-