damping principle should be changed as follows: *for a chronologically correct ordering of texts, the greatest number of citations is generally related to those closest to the writer in time, while citations of those distant in time gradually decrease as they move farther from the author.* This picture arises on averaging the reciprocal citation frequency graph with respect to all the texts from the collection under consideration. The model was verified by the author of the present paper for citations in the mathematical literature. We investigated the collection of surveys published in 1970–1983 in the *Uspechi Matem. Nauk (USSR)*. The reciprocal citation graph turned out to be nearly identical to the ideal, Fig. 1. It is natural to expect the same character of citations in the scientific literature of any other kind.

7 Modification of the frequency damping principle

The author and Prof. Dr. G.V. Nosovsky have recently found a new modification of the procedure for discovering dependent texts on the frequency damping principle basis. G.V. Nosovsky has computerized the whole work. The total volume of this computational work was very large.

Consider first the chronological list of secular or church rulers. Normally, each ruler has several names. We will assume that all the names of a ruler are listed consecutively in the appropriate place in the list, and that there are no separation signs between the names of neighbouring persons (in time). Order the list with respect to the middle year of the rule interval, and denote it by $X = \{a_1, a_2, \ldots, a_N\}$. We assume a decomposition of the list X into chapters $X_1, X_2, \ldots, X_n$ given. Denote by $I = \{u_1, u_2, \ldots, u_m\}$ the set of different names in X, and the name of the ith entry for X by $u(a_i)$, $u(a_i) \in I$.

Definition 1. We call the integer $\sigma(a_i, a_j) = |r - s|$ the scattering of two list entries a_i, a_j in X, $a_i \in X_s$, $a_j \in X_r$.

Definition 2. We will say that two names u_l, $u_k \in I$ are of the same age, and denote the fact by $u_l \approx u_k$, if their first occurrences are in one chapter of X.

Definitions. 3. We will say that two names u_l, $u_k \in I$ are conjugate, and denote the fact by $u_l \sim u_k$ if there exists a chapter X_p in X, containing both.

If two entries a_i and a_j from a list X are conjugate (or of the same age) with two names from I, then we will also call them *conjugate* (or respectively the *same age*), and employ the corresponding notation. Consider a finite scheme (Ω, Σ, P) of sampling with equal probability with replacement of two elements from X. Thus, $\Omega = X \times X$, $\Sigma = 2^{\Omega}$, $P(\omega) = 1/N^2$ for any $\omega \in \Omega$. We will denote the first selected element by $a_{(1)}$, and the second by $a_{(2)}$. Consider the scattering of the pair $a_{(1)}$, $a_{(2)}$

$$\xi_1(\omega) = \rho(a_{(1)}, a_{(2)}). \tag{1}$$

It is a random variable defined on Ω.

We will assume that the events

$$A = \{\omega : a_{(1)} \approx a_{(2)}\}, \quad B = \{\omega : a_{(1)} \sim a_{(2)}\}$$

are nonzero, and $P(A) \neq 0$, $P(B) \neq 0$. Consider the conditional probabilities P_A and P_B on Ω, namely,

$$P_A(C) = P(AC)/P(A), \quad P_B(C) = P(BC)/P(B),$$

for each $C \in \Sigma$. Denote by f_1, f_2 and f_3, respectively, the distributions of the random